



**FCC CFR47 PART 15 SUBPART C
CERTIFICATION
TEST REPORT**

FOR

NOTEBOOK PC

MODEL NUMBER: NP-Q1

FCC ID: A3L-NP-Q1

REPORT NUMBER: 06I10115-1

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Prepared for

**SAMSUNG ELECTRONICS CO., LTD.
#416, MAETAN -3 DONG, PARDAL-GU
SUWON CITY, GYEONGGI-DO 442-742
KOREA**

Prepared by

**COMPLIANCE CERTIFICATION SERVICES
561F MONTEREY ROAD
MORGAN HILL, CA 95037, USA
TEL: (408) 463-0885
FAX: (408) 463-0888**

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
#416, MAETAN -3 DONG, PARDAL-GU
SUWON CITY, GYEONGGI-DO 442-742
KOREA

EUT DESCRIPTION: NOTEBOOK PC

MODEL: NP-Q1

SERIAL NUMBER: 625C1047762

DATE TESTED: FEBRUARY 22 – MARCH 15, 2006

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:



THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

FRANK IBRAHIM
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a notebook PC with 802.11b/g transceiver and BT module installed.

The WLAN transceiver radio module is manufactured by Atheros.

The BT radio module is manufactured by Broadcom. It is already certified under FCC ID: QDS-BRCM1018.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

2400 to 2483.5 MHz Authorized Band

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	20.23	105.44
2412 - 2462	802.11g	24.00	251.19

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The WLAN radio utilizes either one of the following antennas:

1) PIFA Antenna:

Manufacturer: Amphenol KAE Co., Ltd.

P/N: SS-03-03-076

Peak gain with cable loss: 1.71dBi (2400-2500 MHz)

2) PIFA Antenna:

Manufacturer: HON HAI Precision Ind. Co., Ltd.

P/N: WDAN-S1SAT001-DF

Peak gain with cable loss: 1.67dBi (2400-2500 MHz)

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed in the host support equipment during testing was art Wid=7105

The test utility software used during testing was Atheros ART 5.3.Build #11

5.5. WORST-CASE CONFIGURATION AND MODE

EUT was tested in three orthogonal orientations to find out the worst orientation, the worst orientation was found out to be X orientation.

For the frequency range of 30 MHz to 25 GHz, radiated emissions, Low, Mid and High channels for both 11b and 11g modes were tested. Low channel was at 2412 MHz, Mid channel was at 2437 MHz, and high channel was at 2462 MHz.

For 11b mode, 1 Mbps data rate was selected. For 11g mode, 6 Mbps data rate was selected.

5.6. DESCRIPTION OF TEST SETUP

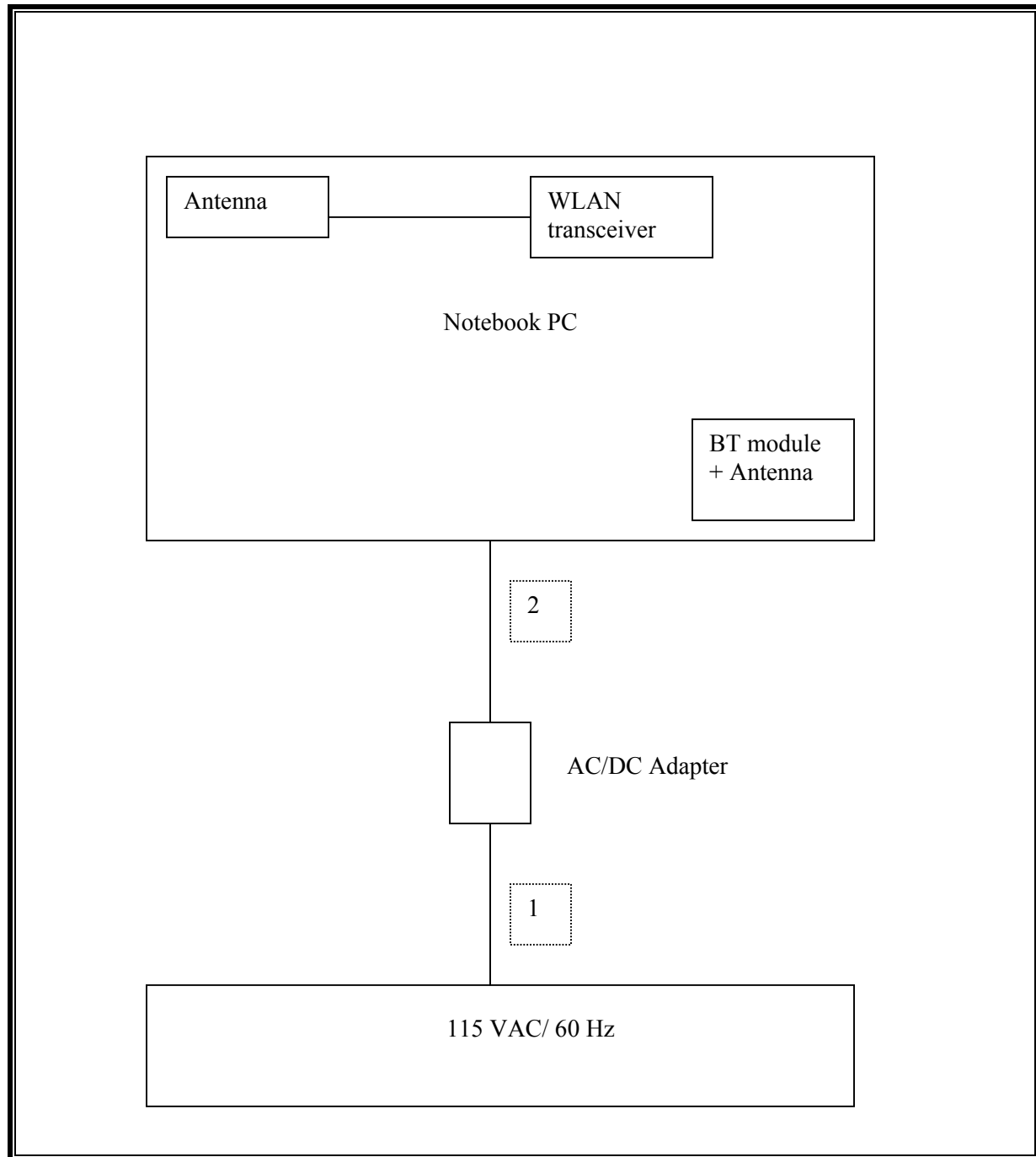
COMPONENTS OF SYSTEM UNDER TEST

COMPONENTS OF SYSTEM UNDER TEST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC Adapter	AcBel	API1AD02	CNBA4400162ABJ6F5CR0547	DoC
Laptop Computer	Samsung	NP-Q1	467F93AYC00017W	A3L-NP-Q1
WLAN Transceiver	Atheros	AR5BXB61	625C1047762	NA
BT Module	Broadcom	BCN92045NMD	20050J0891	QDS-BRCM1018

I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	AC	Unshielded	1m	N/A
2	DC	1	DC	Unshielded	1.8m	N/A

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	Cal Due
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent	E4446A	US42070220	07/29/06
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	2238	04/22/06
Preamplifier, 1 ~ 26.5 GHz	Agilent	8449B	3008A00561	10/03/07
Antenna, Horn 18 ~ 26 GHz	ARA	MWH-1826/B	1049	09/12/06
Power Meter	HP	437B	3125U11347	04/18/07
Power Sensor	HP	8481A	2702A66876	01/11/07
Antenna, Bilog 30 MHz ~ 2 GHz	Sunol Sciences	JB1	A121003	09/03/06
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	02/04/07
RF Filter Section	HP	85420E	3705A00256	02/04/07
EMI Test Receiver	R & S	ESHS 20	827129/006	06/03/06
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	08/30/06
(2.4-2.5) GHz Band Reject Filter	MicroTronics	BRM50702	001	C.N.R

7. LIMITS AND RESULTS

7.1. CHANNEL TESTS FOR THE 2400 TO 2483.5 MHz BAND

7.1.1. 6 dB BANDWIDTH

LIMIT

§15.247 (a) (2) For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

No non-compliance noted:

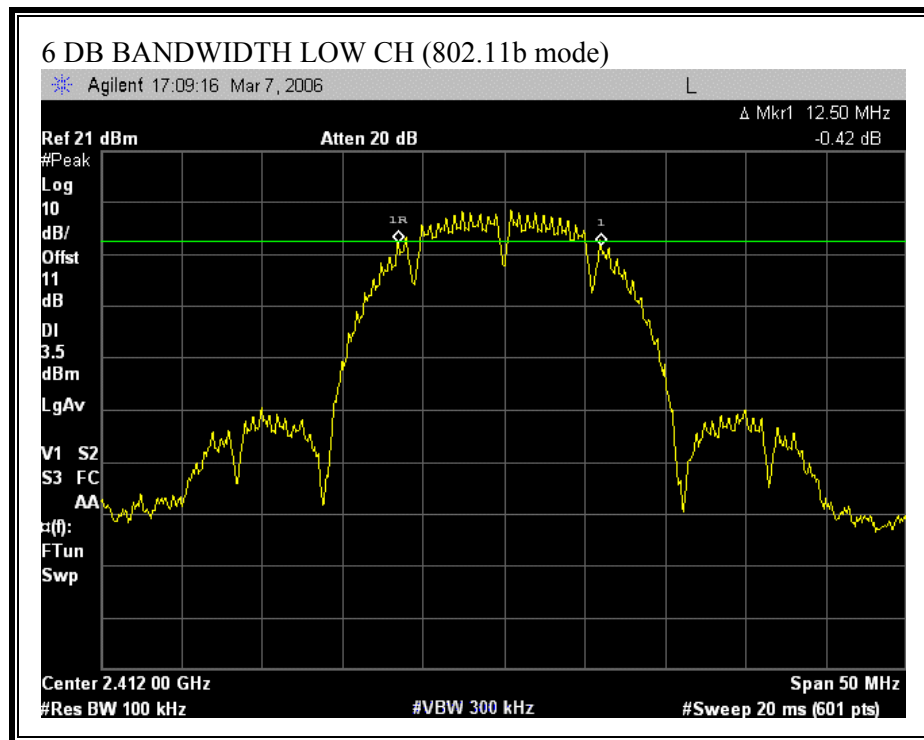
802.11b Mode

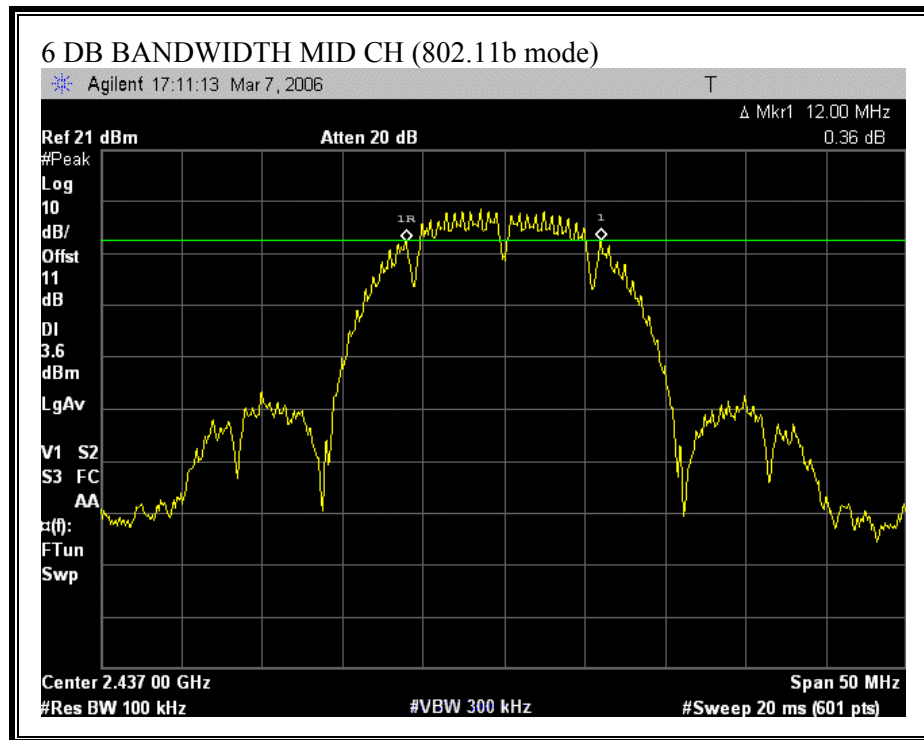
Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
Low	2412	12500	500	12000
Middle	2437	12000	500	11500
High	2462	12500	500	12000

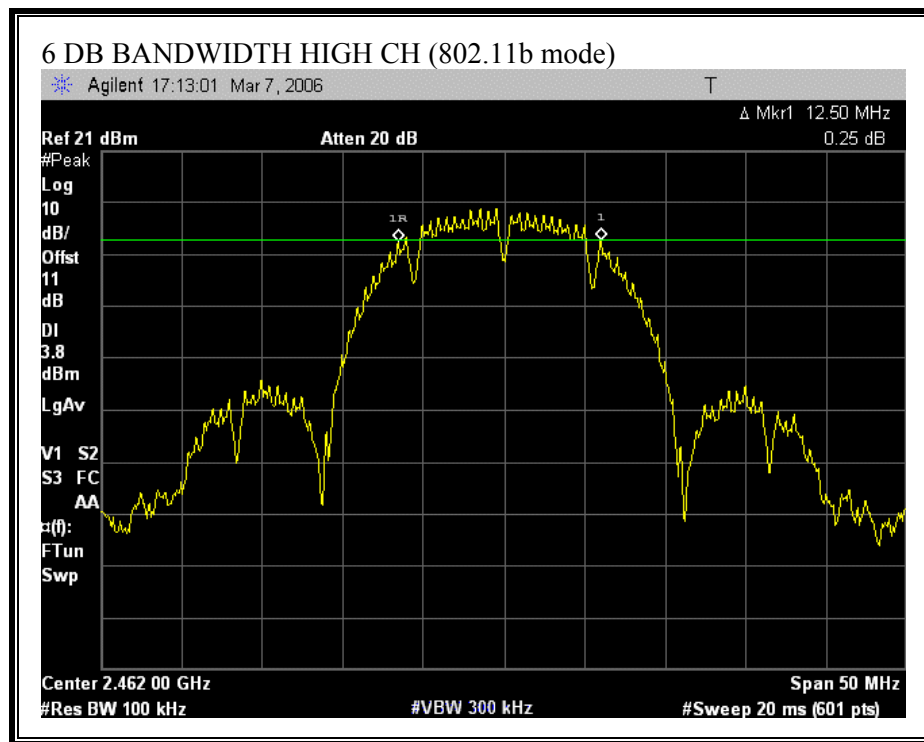
802.11g Mode

Channel	Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Margin (kHz)
Low	2412	16580	500	16080
Middle	2437	16420	500	15920
High	2462	16580	500	16080

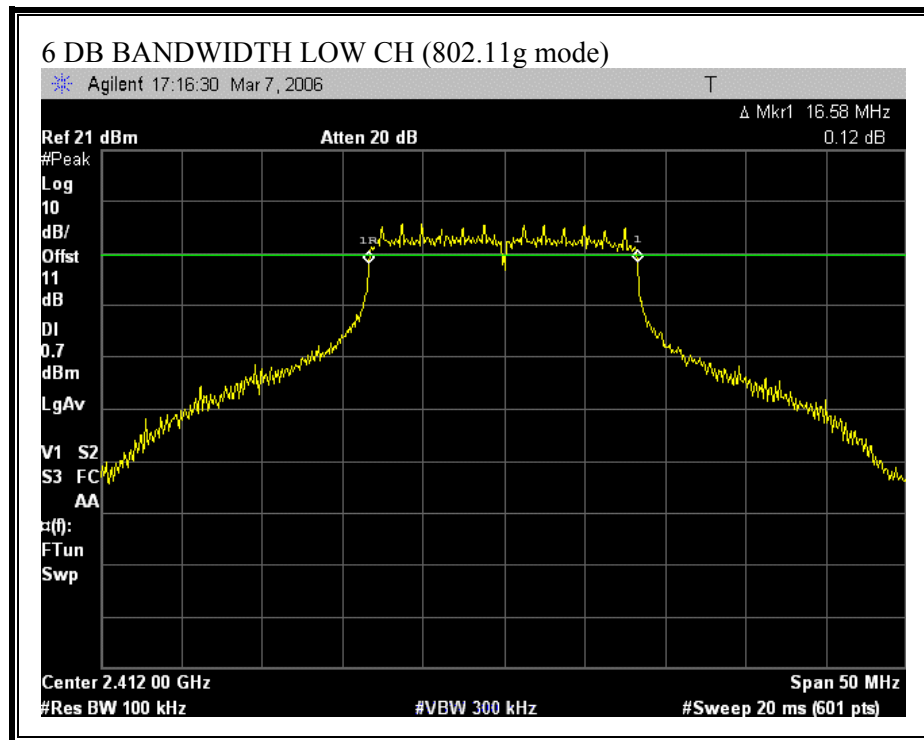
6 DB BANDWIDTH (802.11b MODE)

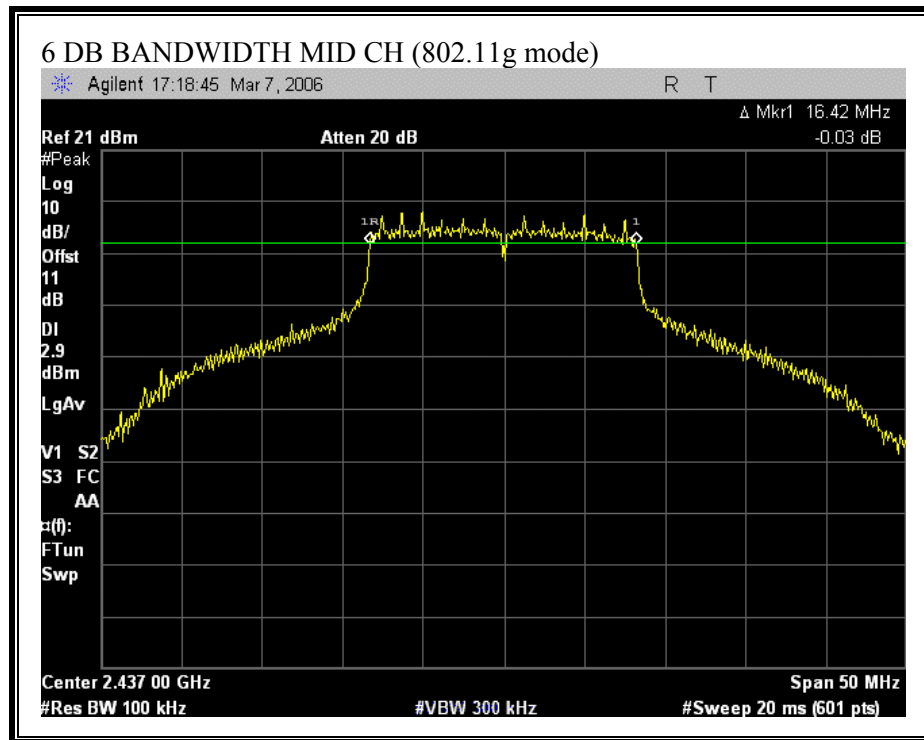


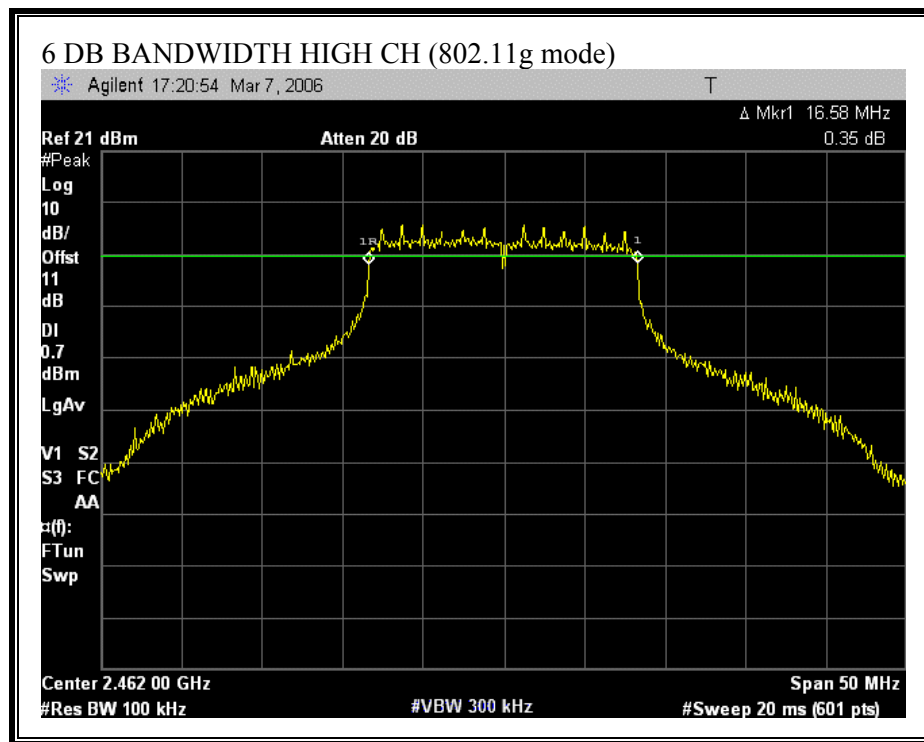




6 DB BANDWIDTH (802.11g MODE)







7.1.2. 99% BANDWIDTH

LIMIT

None: for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

No non-compliance noted:

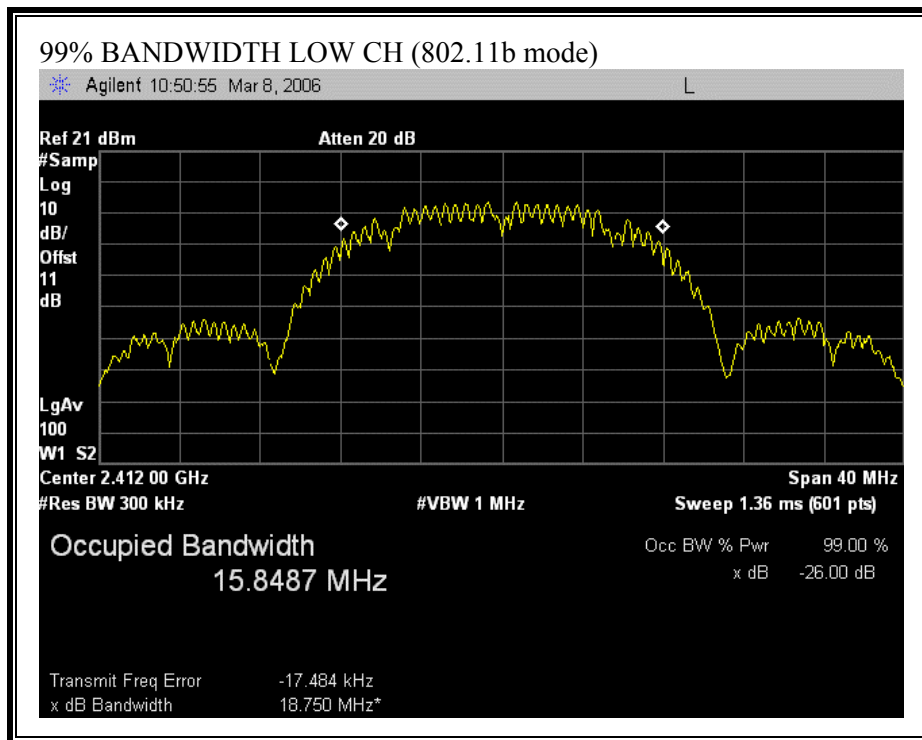
802.11b Mode

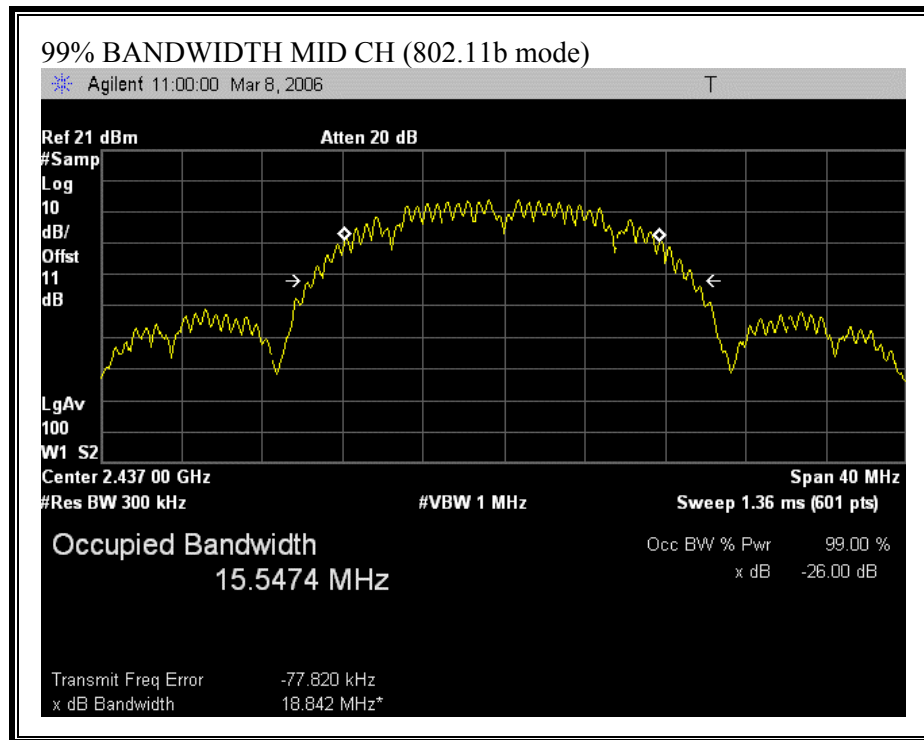
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	15.8487
Middle	2437	15.5474
High	2462	15.6003

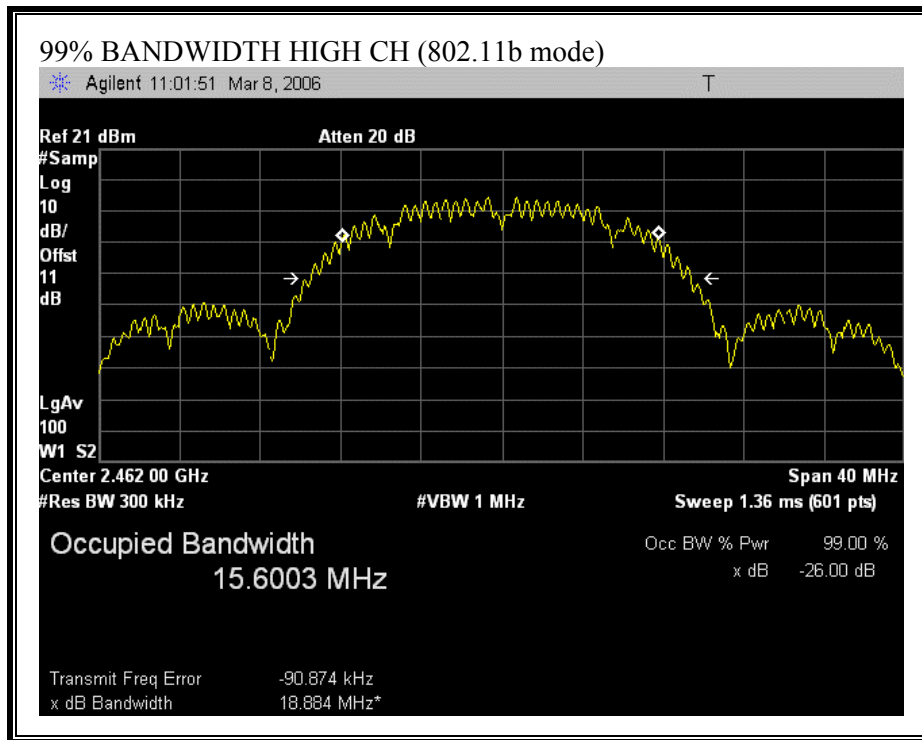
802.11g Mode

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.5068
Middle	2437	16.5947
High	2462	16.5288

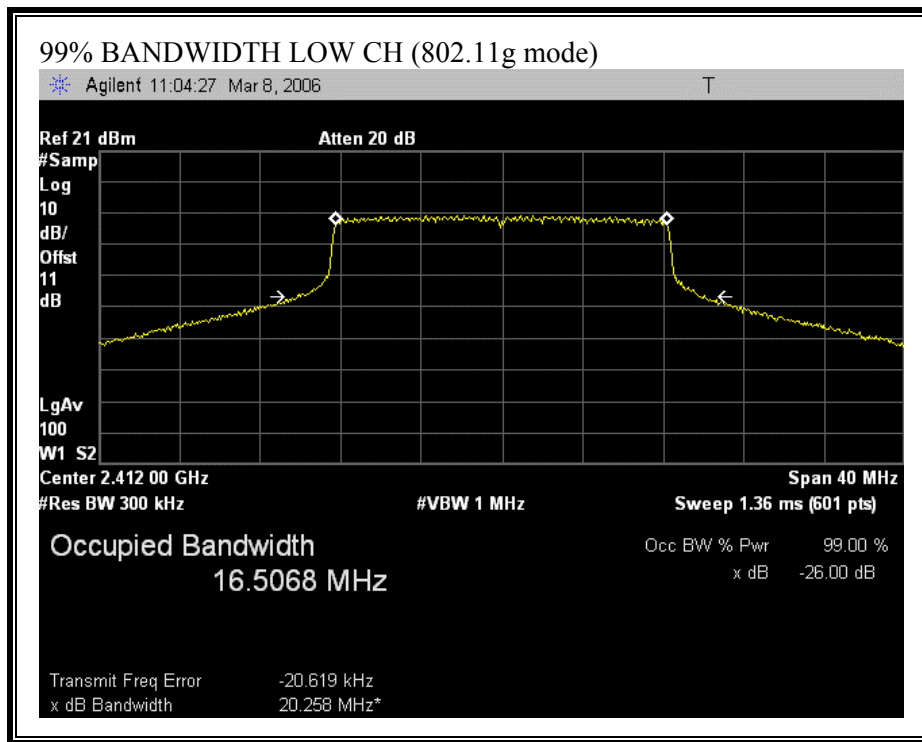
99% BANDWIDTH (802.11b MODE)

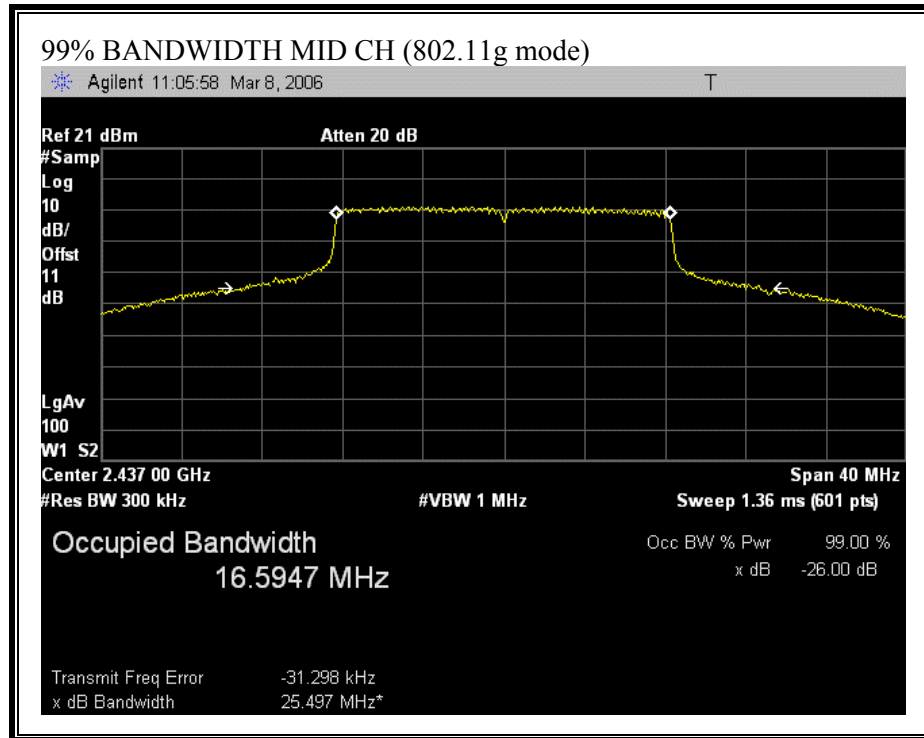


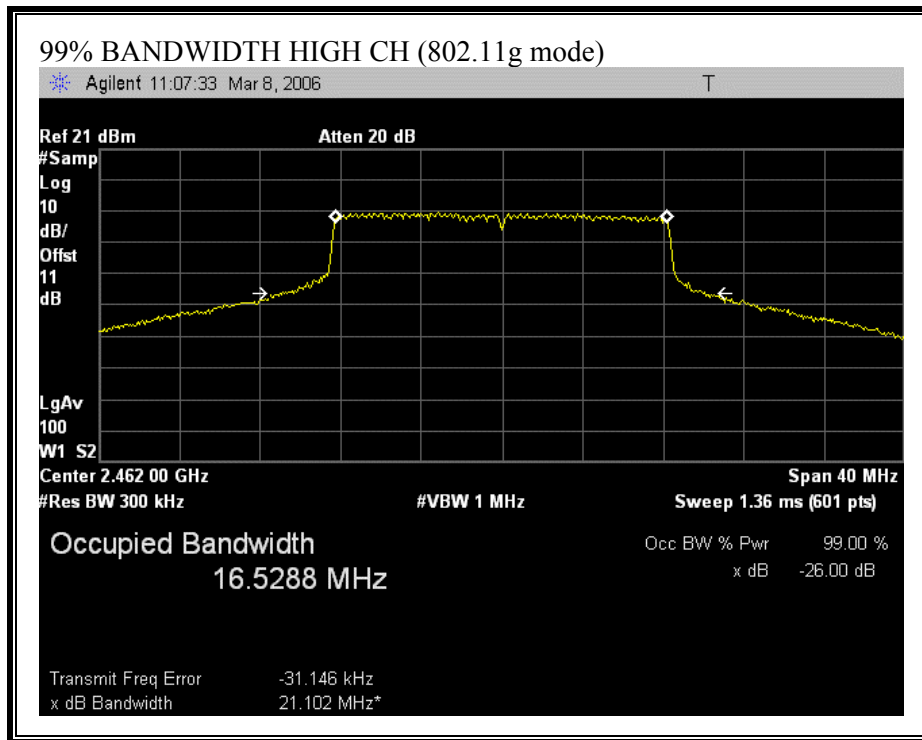




99% BANDWIDTH (802.11g MODE)







7.1.3. PEAK OUTPUT POWER

PEAK POWER LIMIT

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz , and 5725-5850 MHz bands: 1 watt.

§15.247 (b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz , and 5725-5850 MHz bands: 1 watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

§15.247 (b) (4) (i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.

RESULTS

The maximum antenna gain is 1.71 dBi for other than fixed, point-to-point operations; therefore the limit is 30 dBm.

No non-compliance noted:

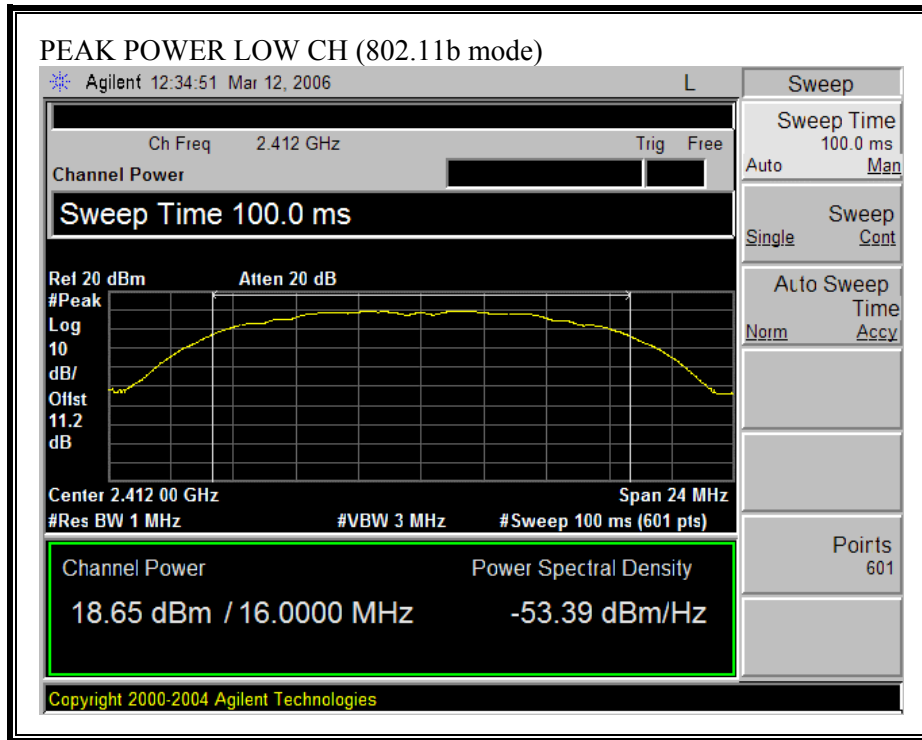
802.11b Mode

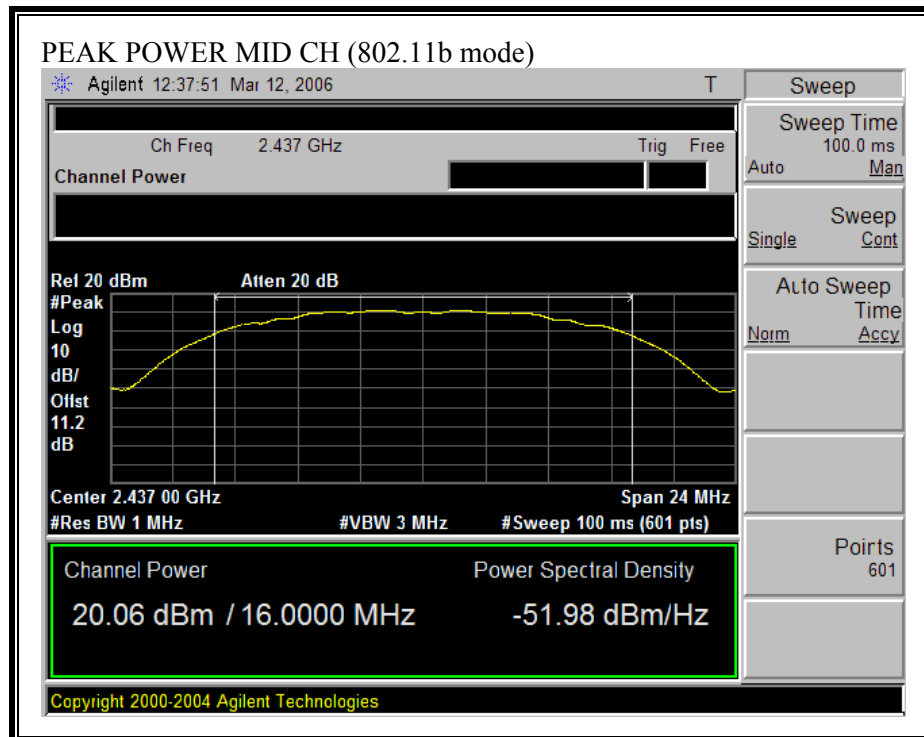
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	18.65	30	-11.35
Middle	2437	20.08	30	-9.92
High	2462	20.23	30	-9.77

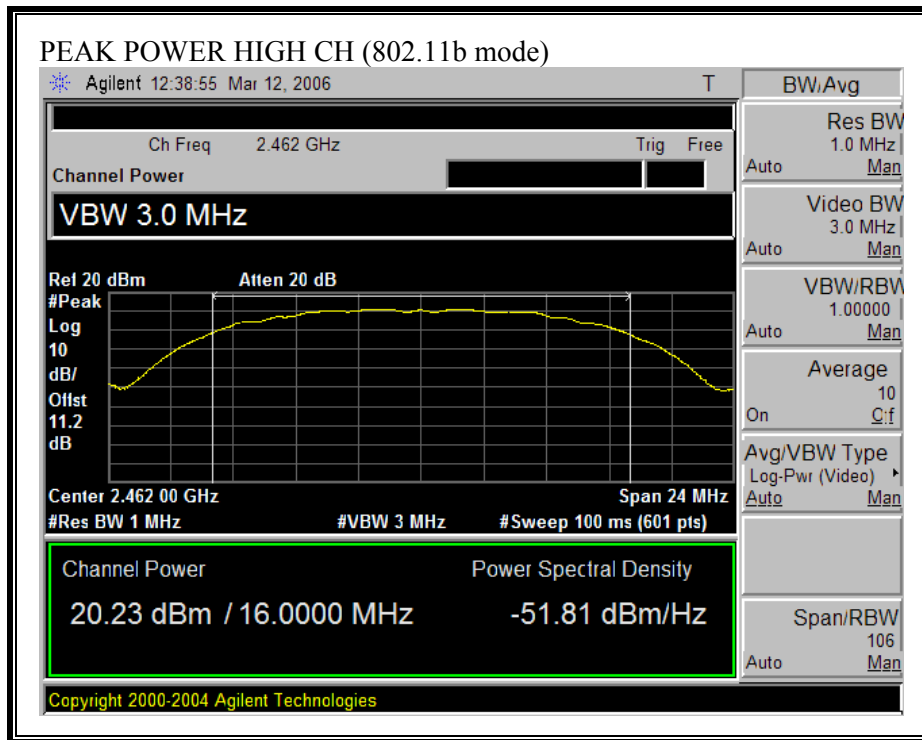
802.11g Mode

Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	22.91	30	-7.09
Middle	2437	23.84	30	-6.16
High	2462	24.00	30	-6.00

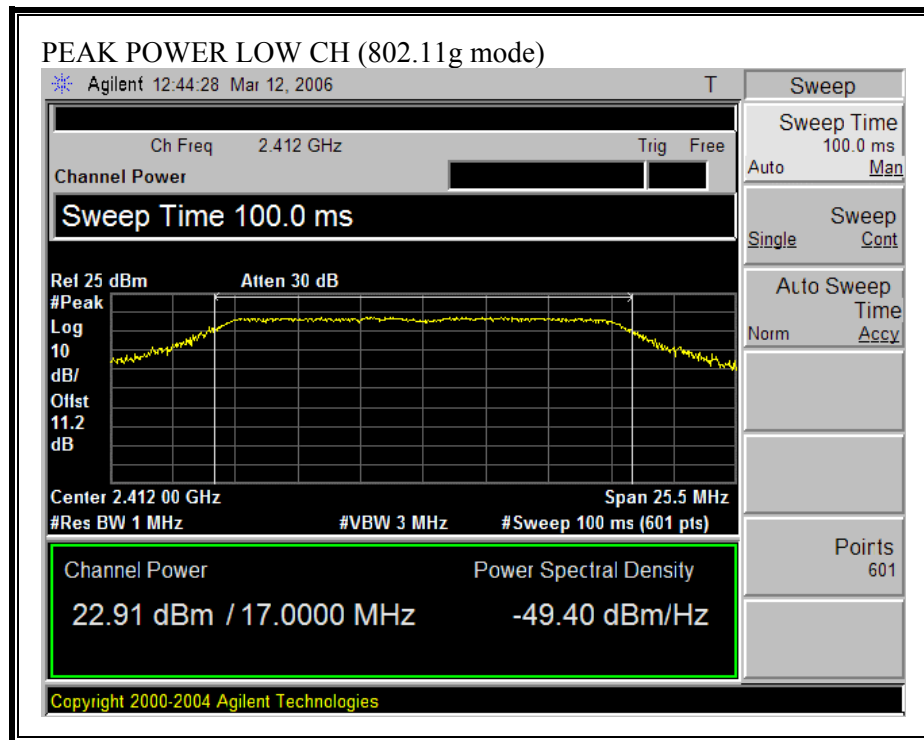
OUTPUT POWER (802.11b MODE)

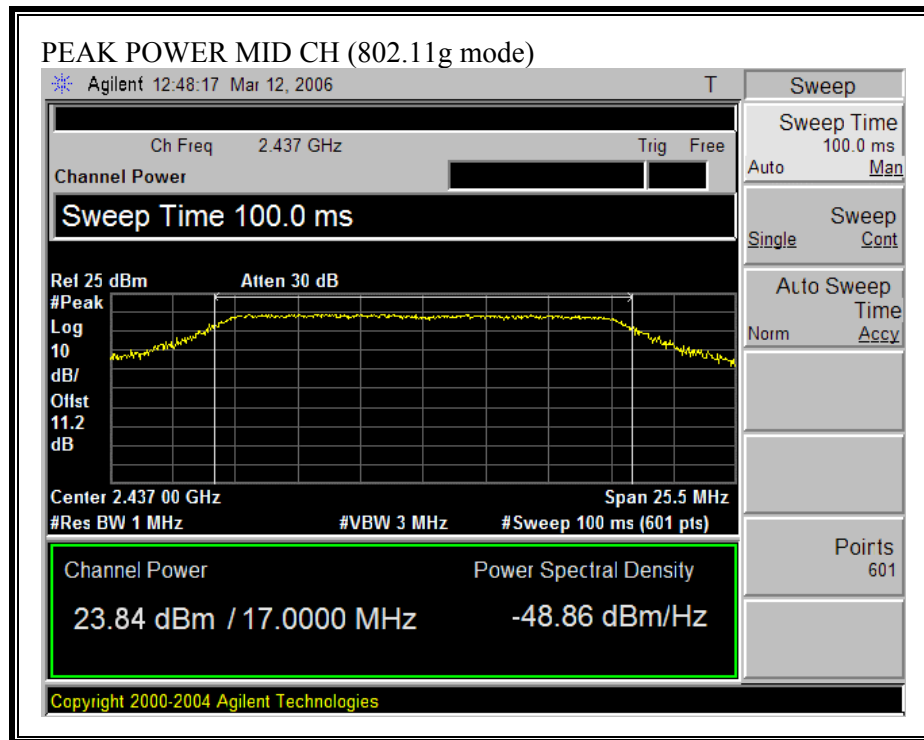


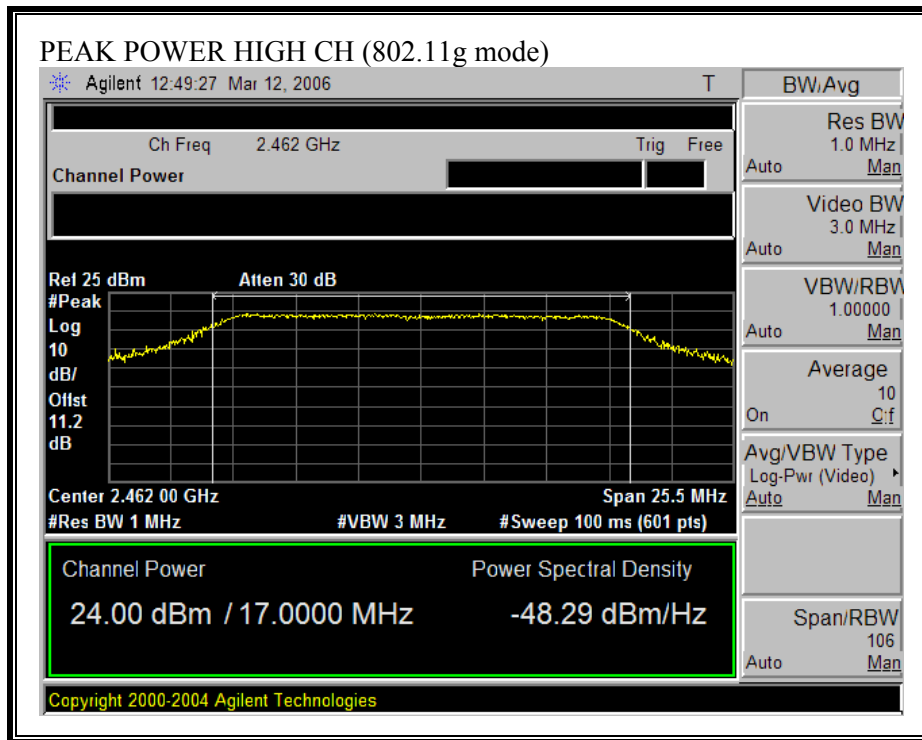




OUTPUT POWER (802.11g MODE)







7.1.4. MAXIMUM PERMISSIBLE EXPOSURE

LIMITS

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

CALCULATIONS

Given

$$E = \sqrt{(30 * P * G) / d}$$

and

$$S = E^2 / 3770$$

where

E = Field Strength in Volts/meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power Density in milliwatts/square centimeter

Combining equations and rearranging the terms to express the distance as a function of the remaining variables yields:

$$d = \sqrt{((30 * P * G) / (3770 * S))}$$

Changing to units of Power to mW and Distance to cm, using:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = 100 * d \text{ (m)}$$

yields

$$d = 100 * \sqrt{((30 * (P / 1000) * G) / (3770 * S))}$$

$$d = 0.282 * \sqrt{(P * G / S)}$$

where

d = distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power Density in mW/cm²

Substituting the logarithmic form of power and gain using:

$$P \text{ (mW)} = 10^{(P \text{ (dBm)} / 10)} \text{ and}$$

$$G \text{ (numeric)} = 10^{(G \text{ (dBi)} / 10)}$$

yields

$$d = 0.282 * 10^{((P + G) / 20)} / \sqrt{S}$$

where

d = MPE distance in cm

P = Power in dBm

G = Antenna Gain in dBi

S = Power Density Limit in mW/cm²

Rearranging terms to calculate the power density at a specific distance yields

$$S = 0.0795 * 10^{((P + G) / 10)} / (d^2)$$

LIMITS

From §1.1310 Table 1 (B), the maximum value of $S = 1.0 \text{ mW/cm}^2$

RESULTS

No non-compliance noted: (MPE distance equals 20 cm)

Mode	MPE Distance (cm)	Output Power (dBm)	Antenna Gain (dBi)	Power Density (mW/cm^2)
802.11b	20.0	20.23	1.71	0.03
802.11g	20.0	24.00	1.71	0.07

NOTE: For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.

7.1.5. AVERAGE POWER

AVERAGE POWER LIMIT

None: for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

802.11b Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	14.95
Middle	2437	16.90
High	2462	17.00

802.11g Mode

Channel	Frequency (MHz)	Power (dBm)
Low	2412	15.20
Middle	2437	16.90
High	2462	16.03

7.1.6. PEAK POWER SPECTRAL DENSITY

LIMIT

§15.247 (d) For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3 kHz and VBW > 3 kHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

RESULTS

No non-compliance noted:

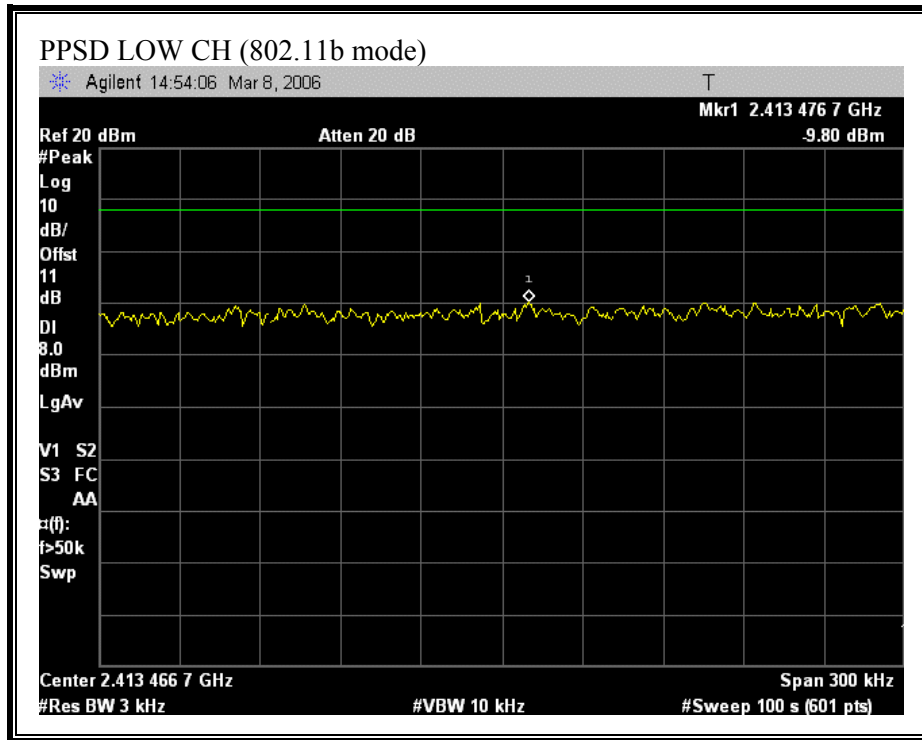
802.11b Mode

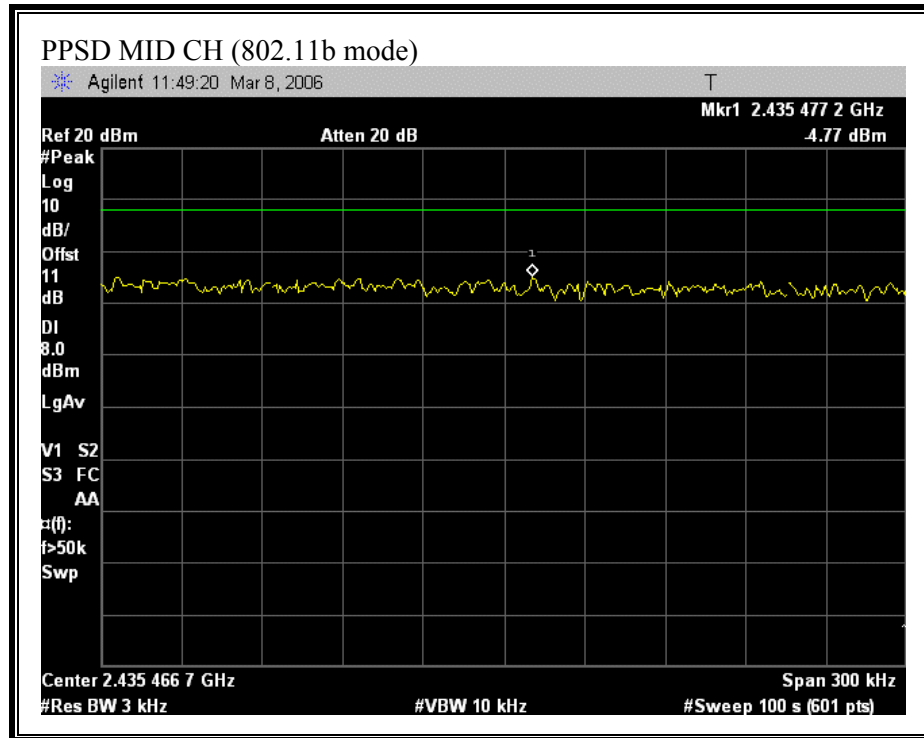
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-9.80	8	-17.80
Middle	2437	-4.77	8	-12.77
High	2462	-2.98	8	-10.98

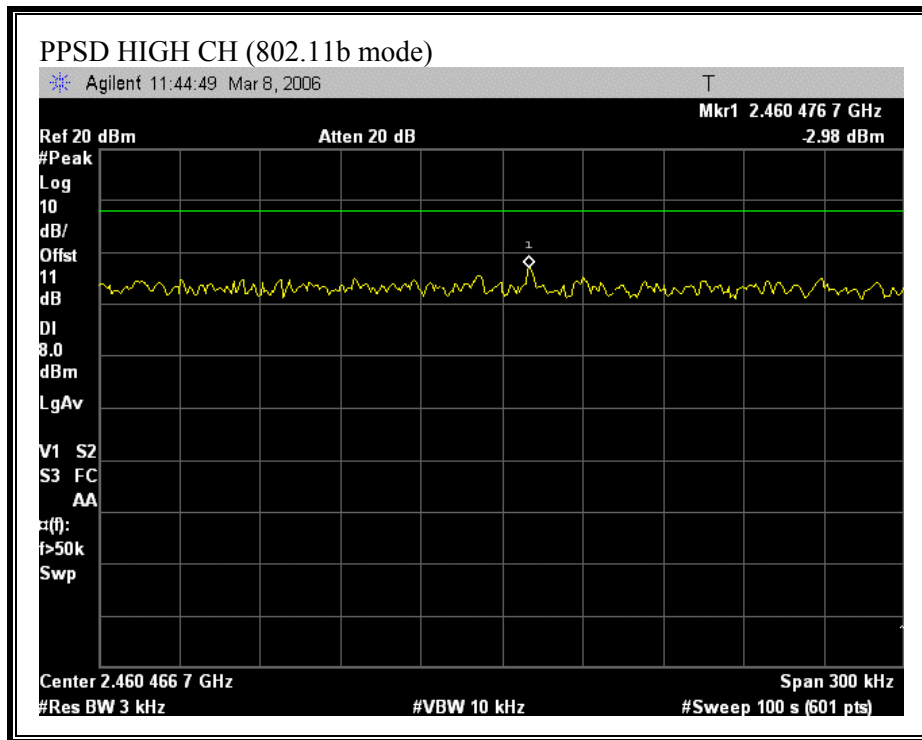
802.11g Mode

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-5.70	8	-13.70
Middle	2437	-2.51	8	-10.51
High	2462	-5.73	8	-13.73

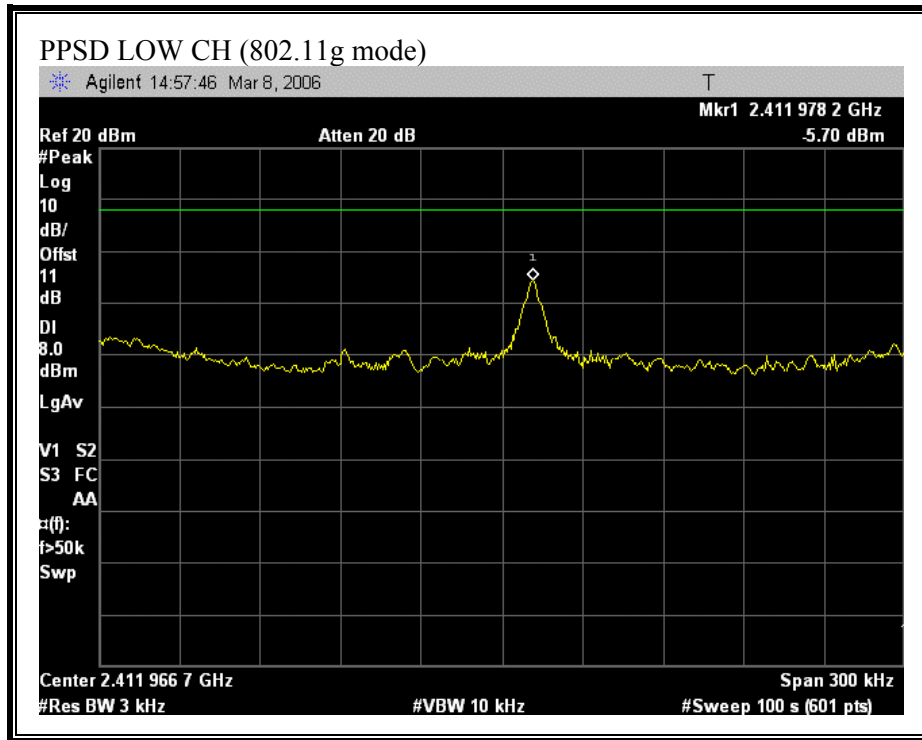
PEAK POWER SPECTRAL DENSITY (802.11b MODE)

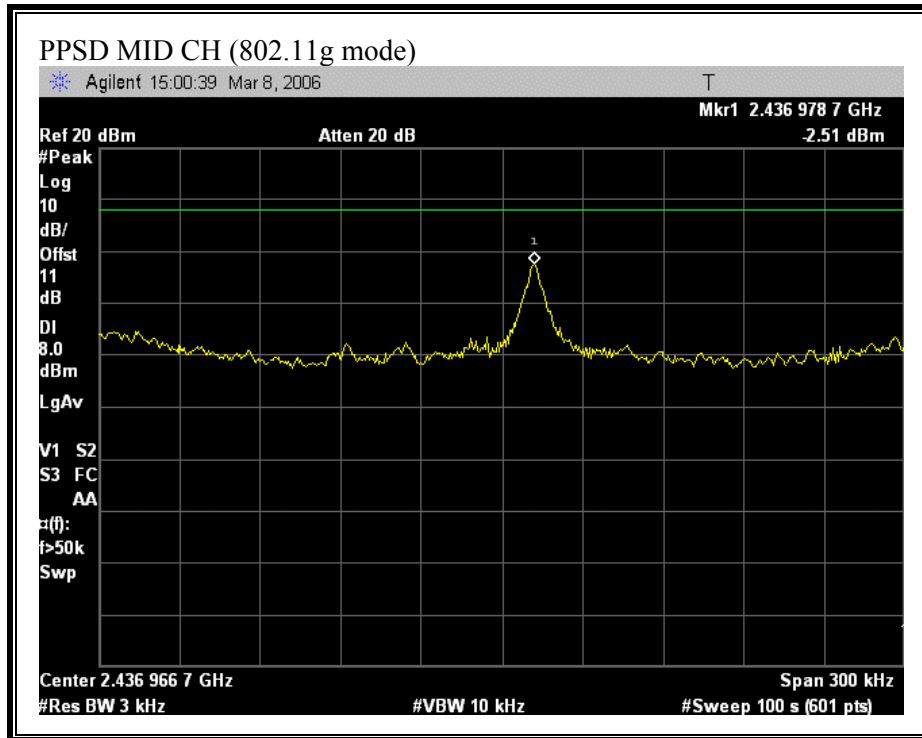


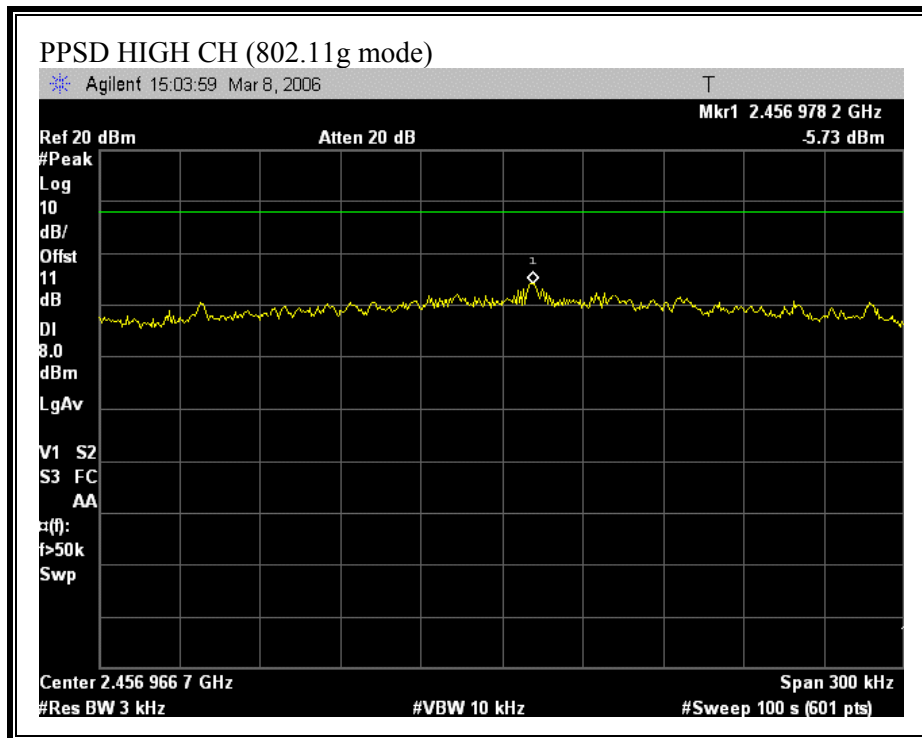




PEAK POWER SPECTRAL DENSITY (802.11g MODE)







7.1.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Conducted power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

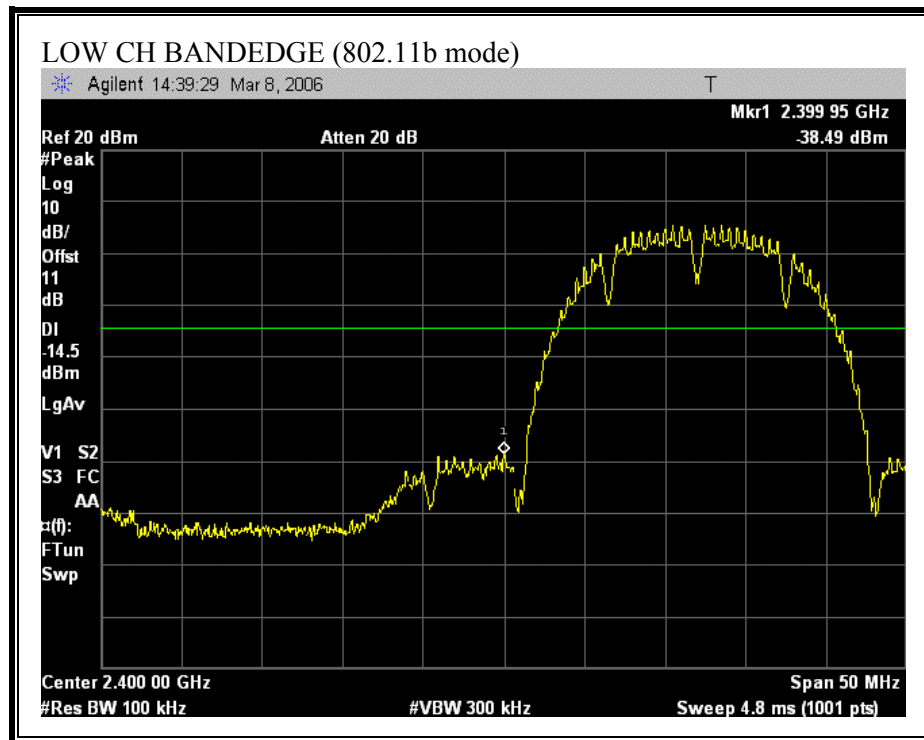
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

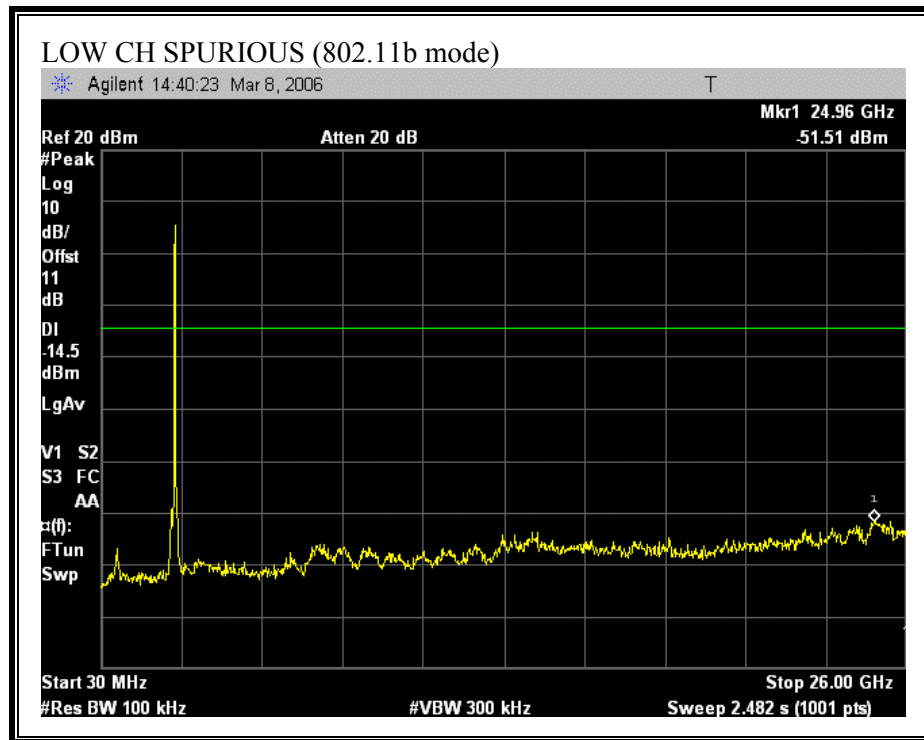
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

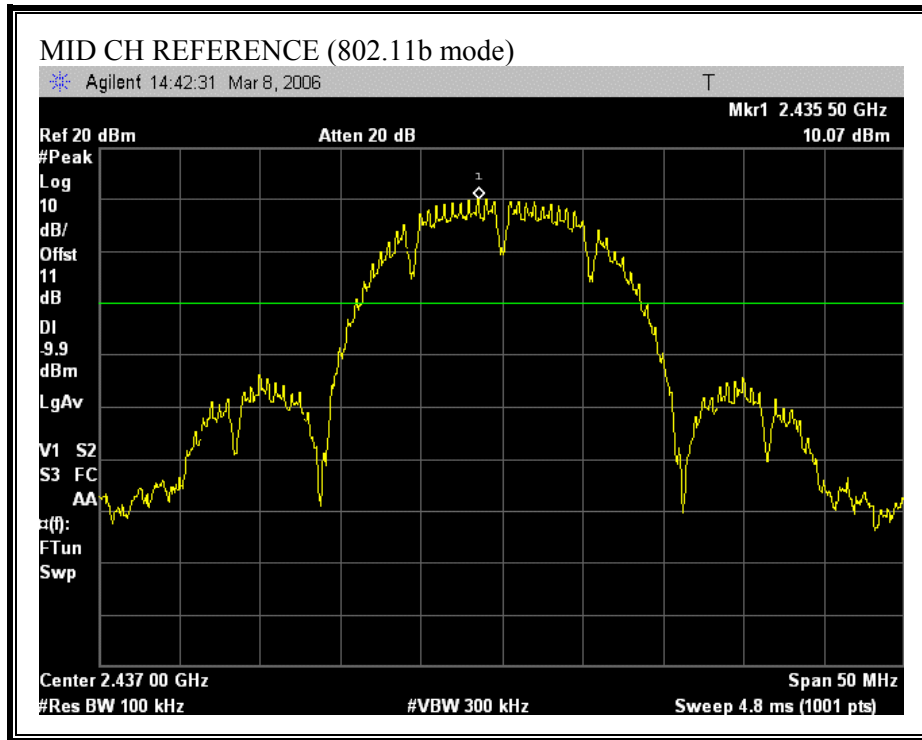
No non-compliance noted:

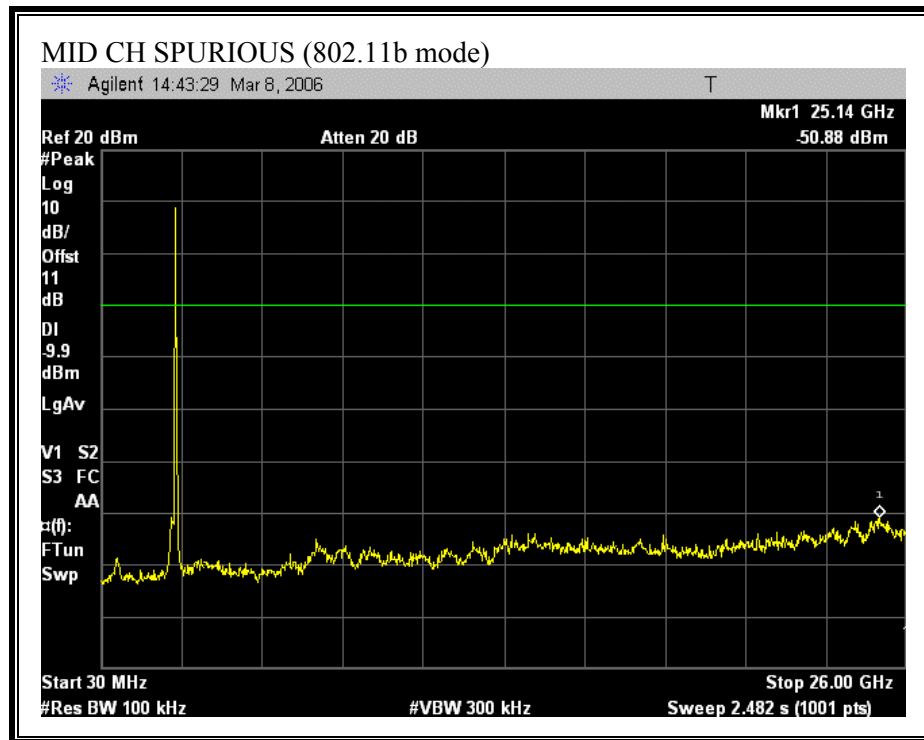
SPURIOUS EMISSIONS, LOW CHANNEL (802.11b MODE)



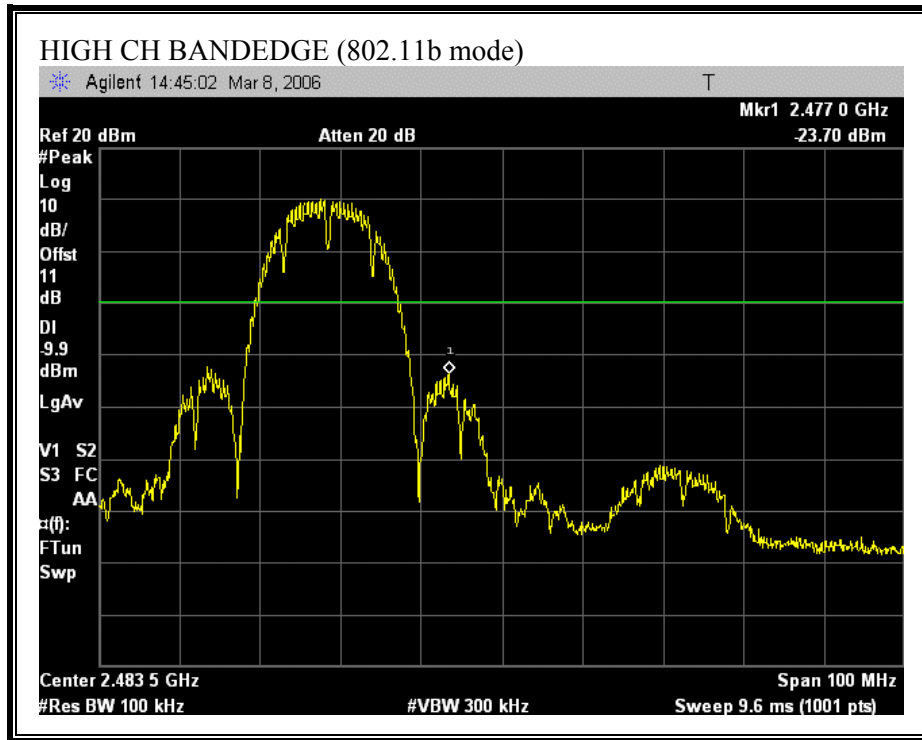


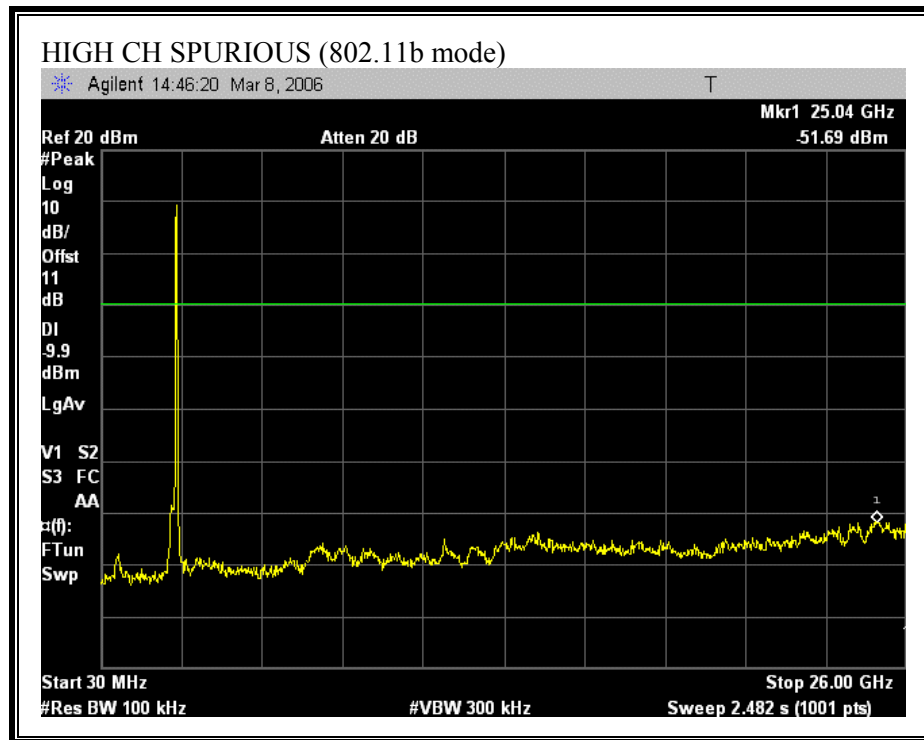
SPURIOUS EMISSIONS, MID CHANNEL (802.11b MODE)



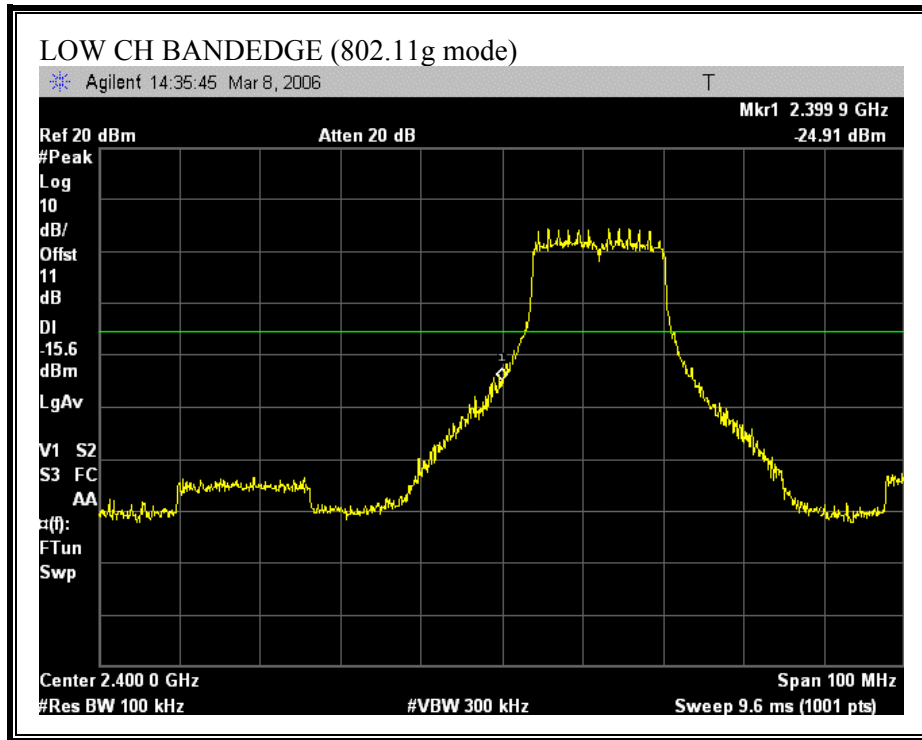


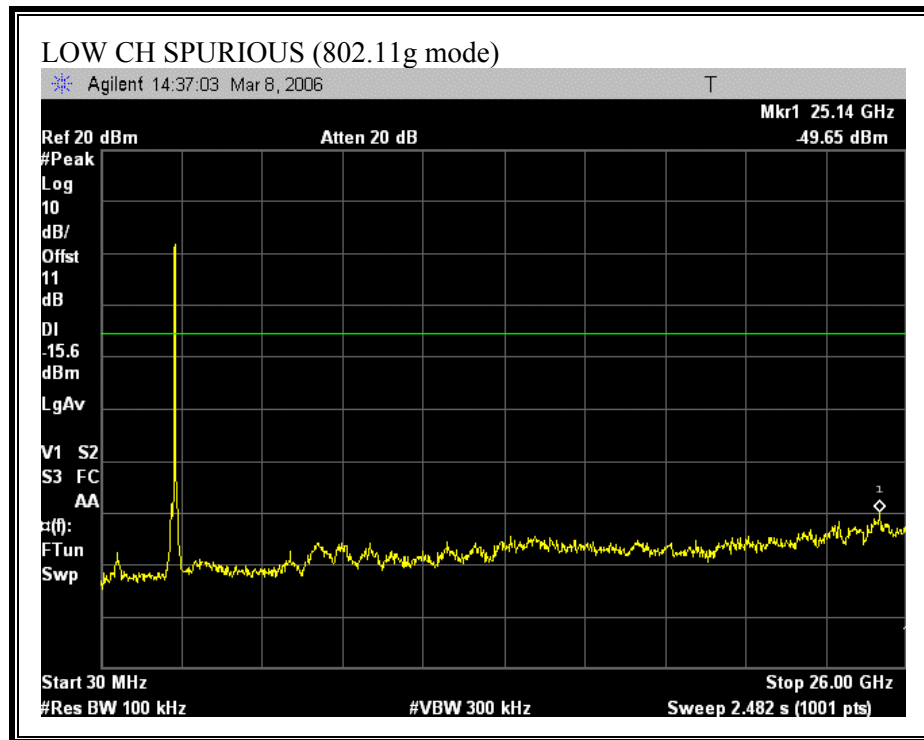
SPURIOUS EMISSIONS, HIGH CHANNEL (802.11b MODE)



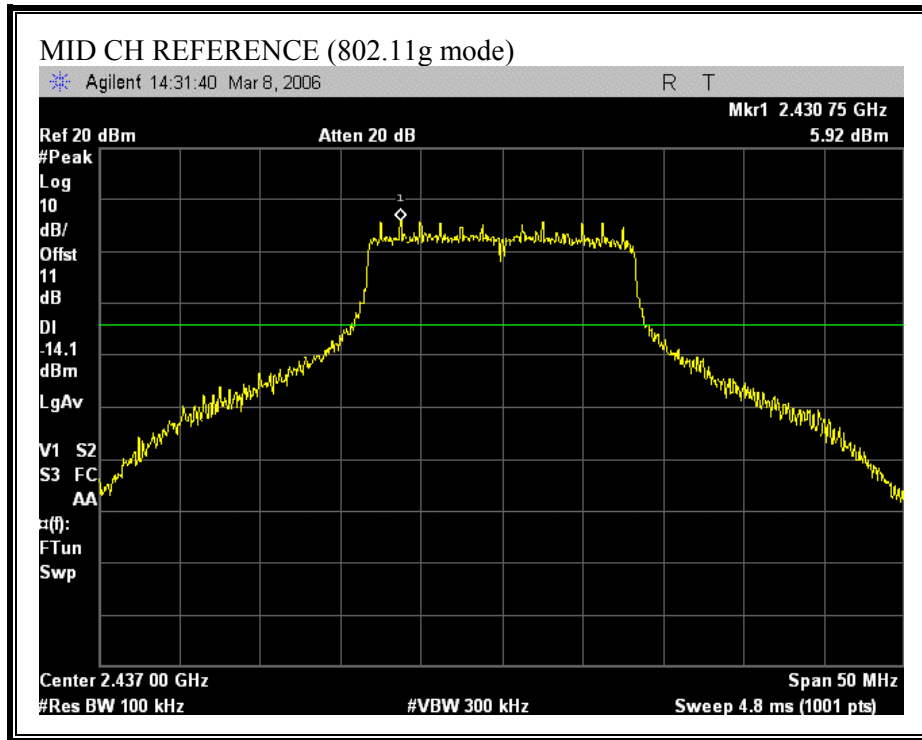


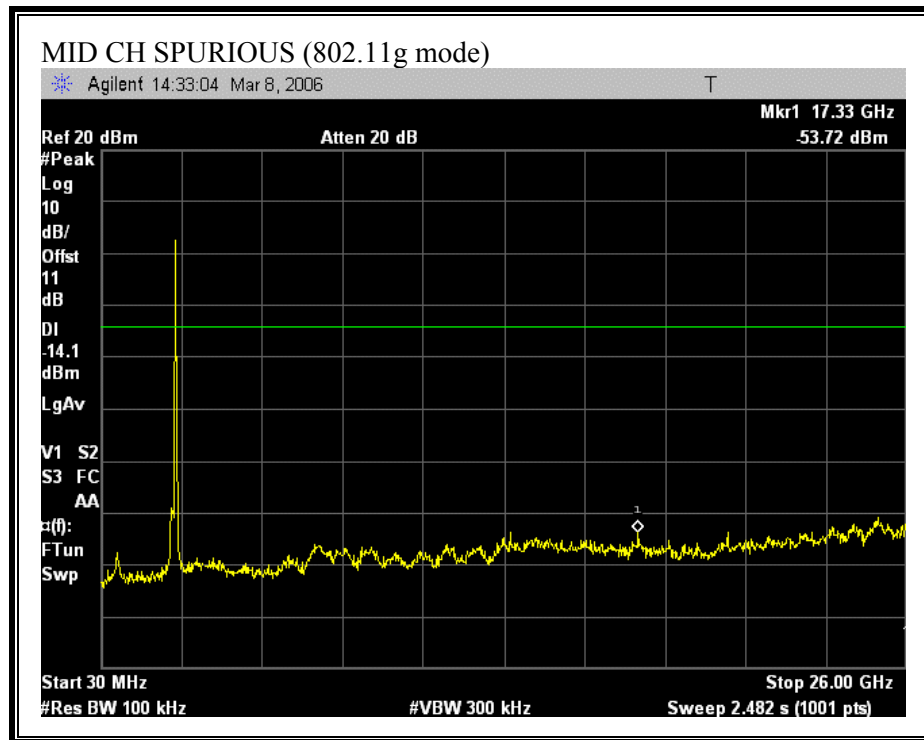
SPURIOUS EMISSIONS, LOW CHANNEL (802.11g MODE)



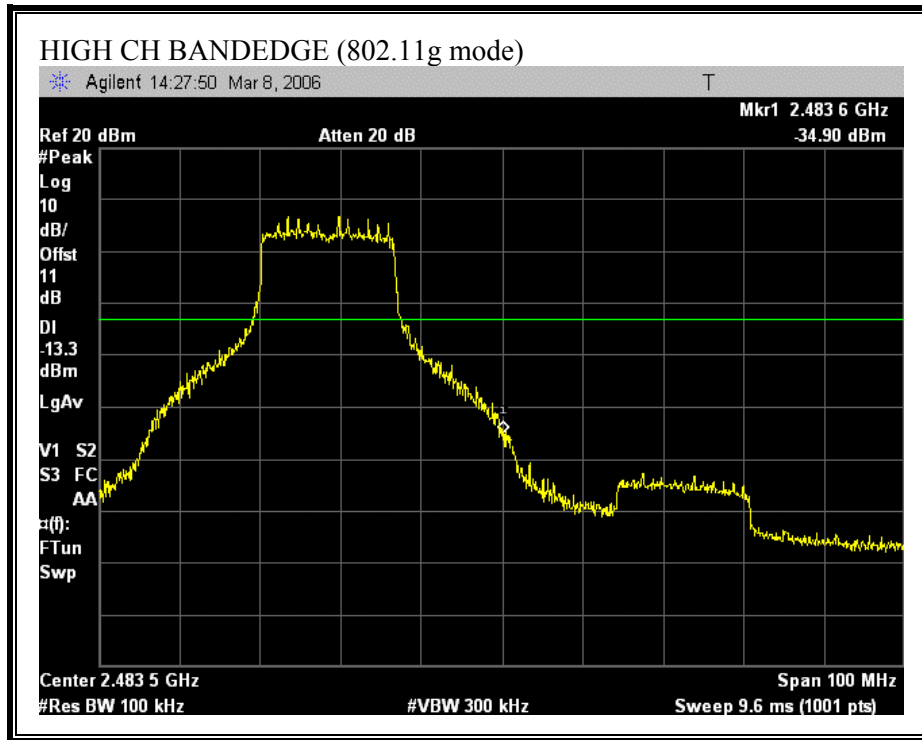


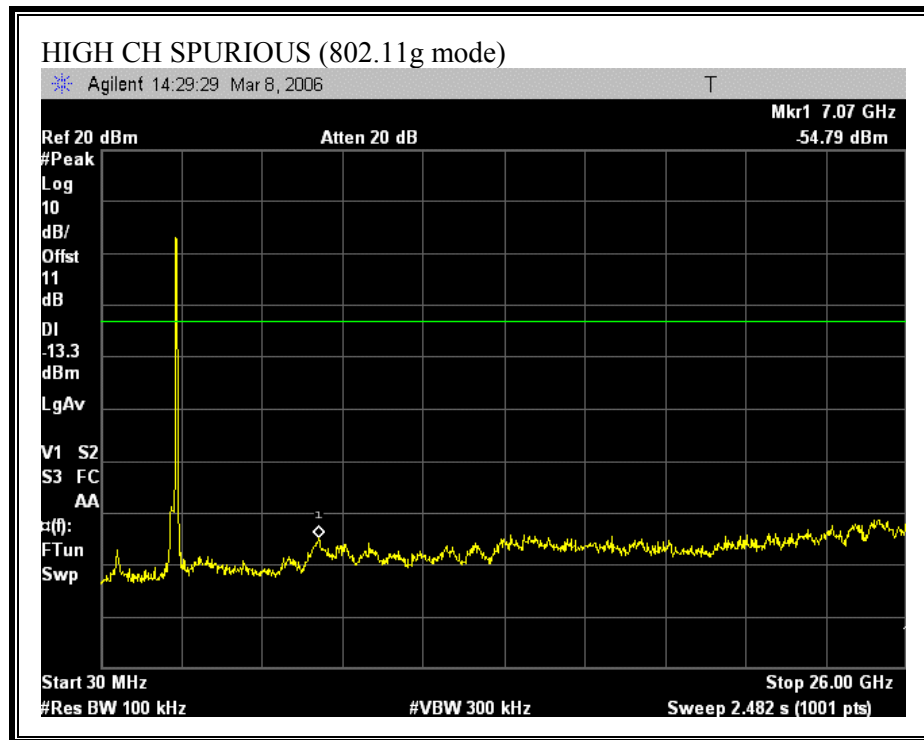
SPURIOUS EMISSIONS, MID CHANNEL (802.11g MODE)





SPURIOUS EMISSIONS, HIGH CHANNEL (802.11g MODE)





7.2. RADIATED EMISSIONS

7.2.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

LIMITS

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

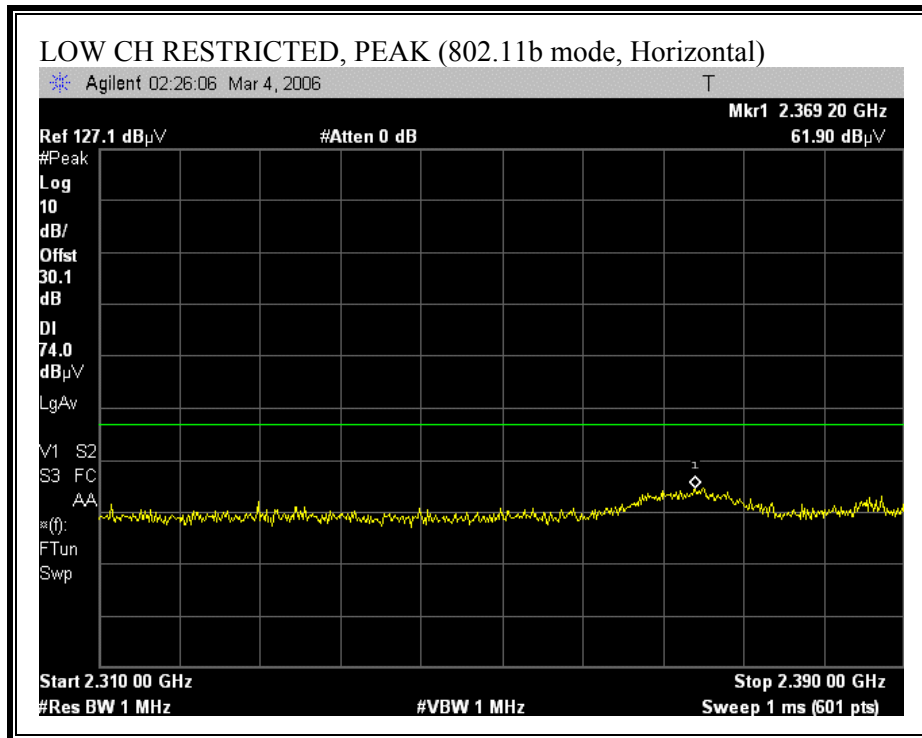
SUPPLEMENTAL TEST PROCEDURE FOR CO-LOCATED TRANSMITTERS

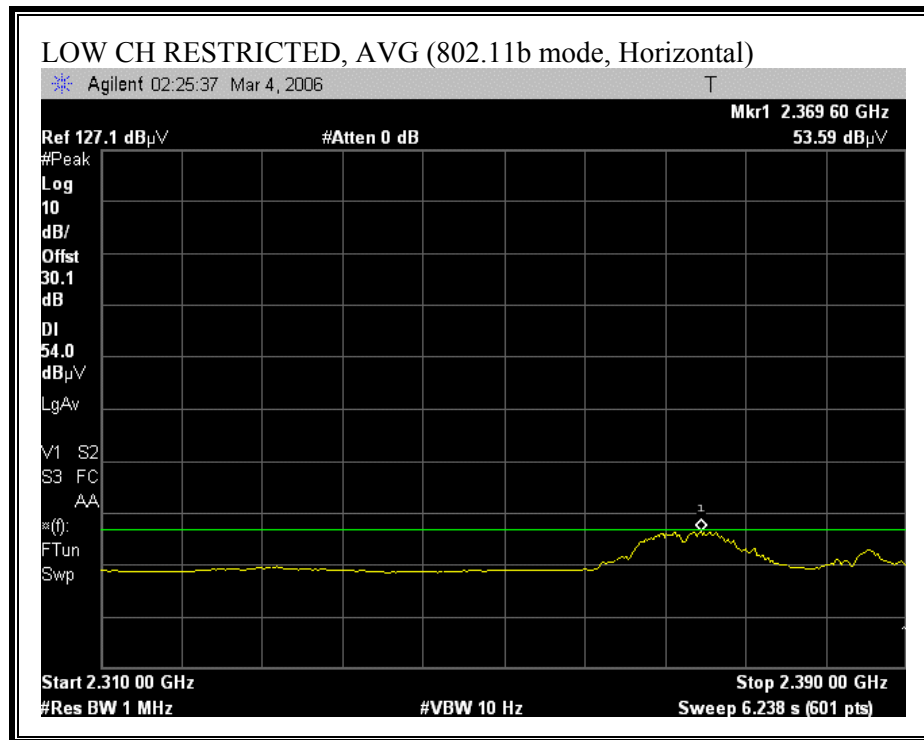
The dominant transmitter is set to the worst case channel. The spurious emissions performance of the dominant transmitter is investigated as the settings of the non-dominant transmitter are varied. The spectrum is searched for intermodulation products. Worst-case results are reported.

TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND

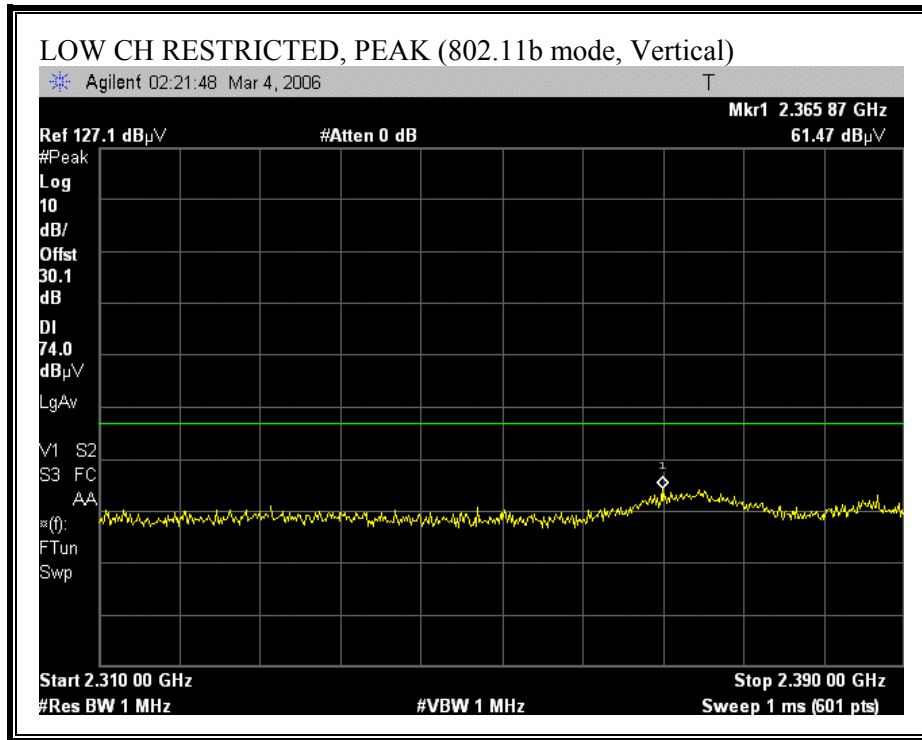
EUT with Foxconn Antenna

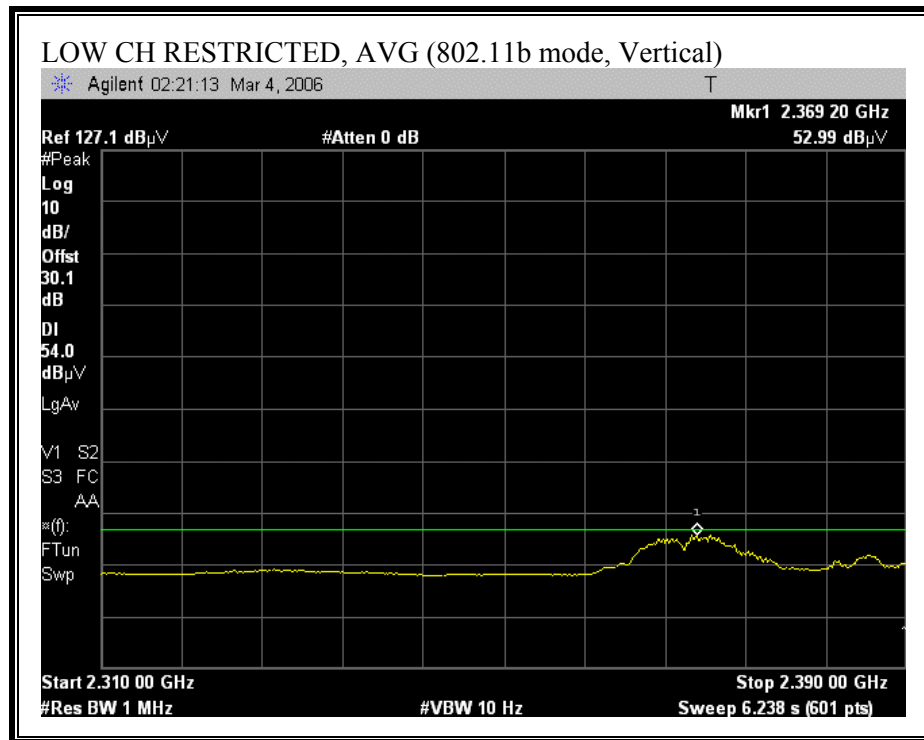
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)



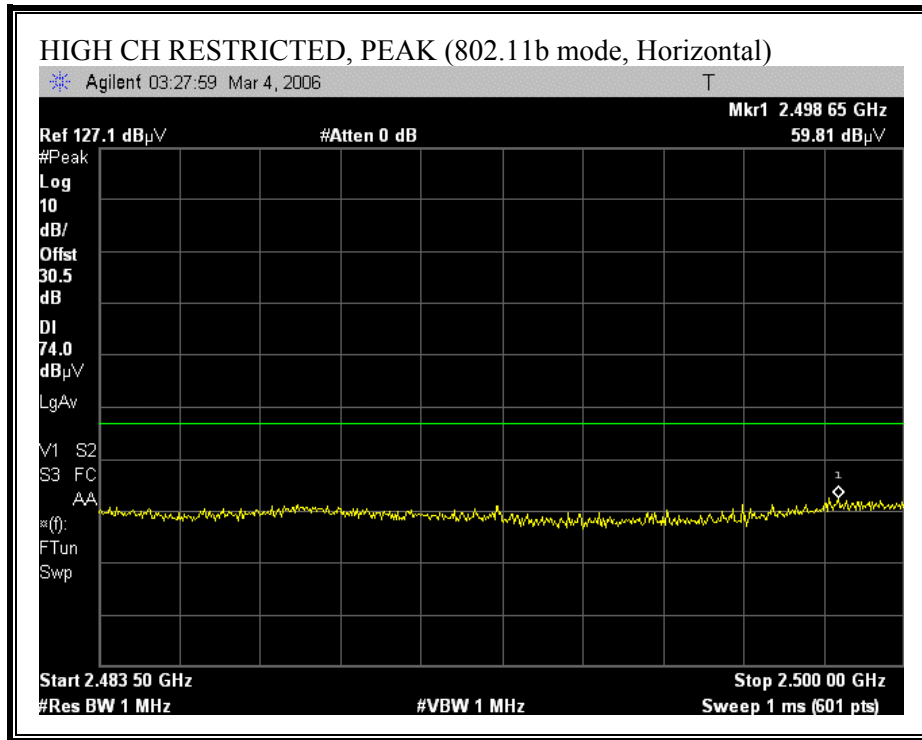


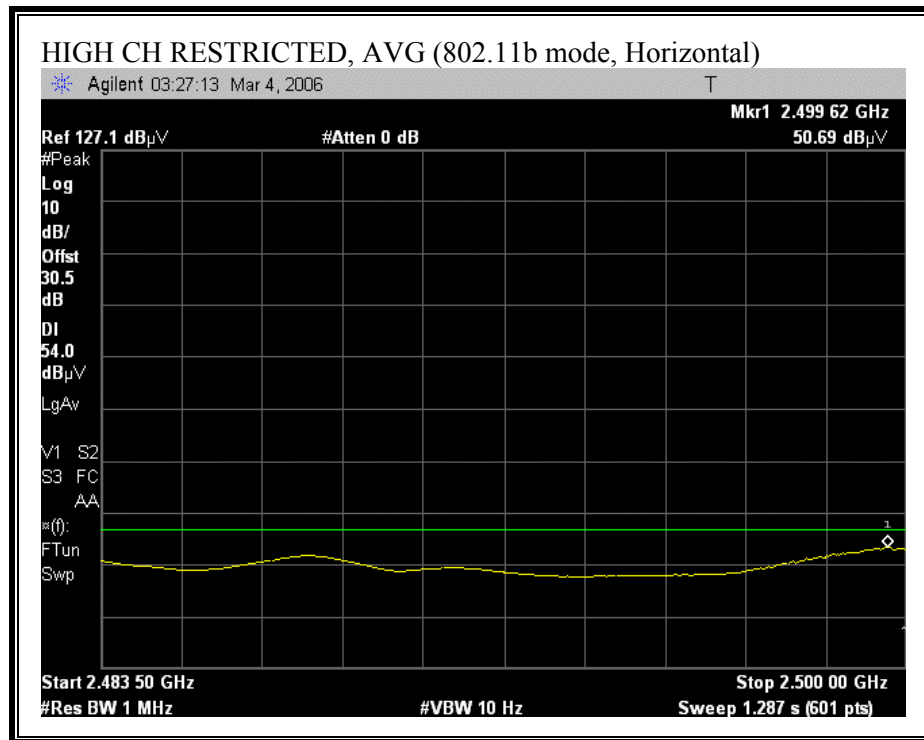
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)



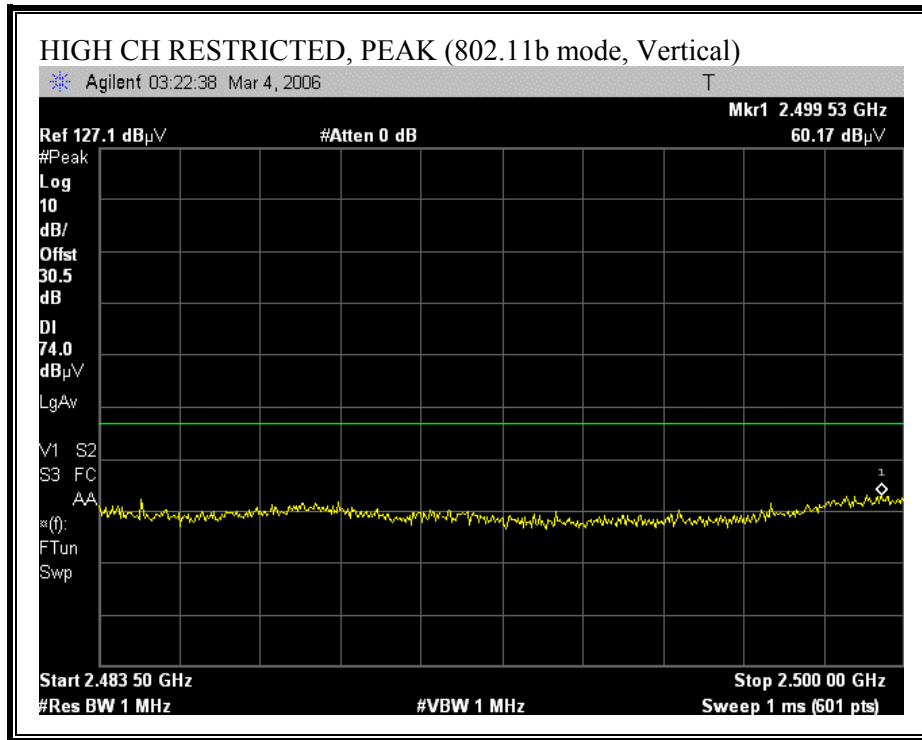


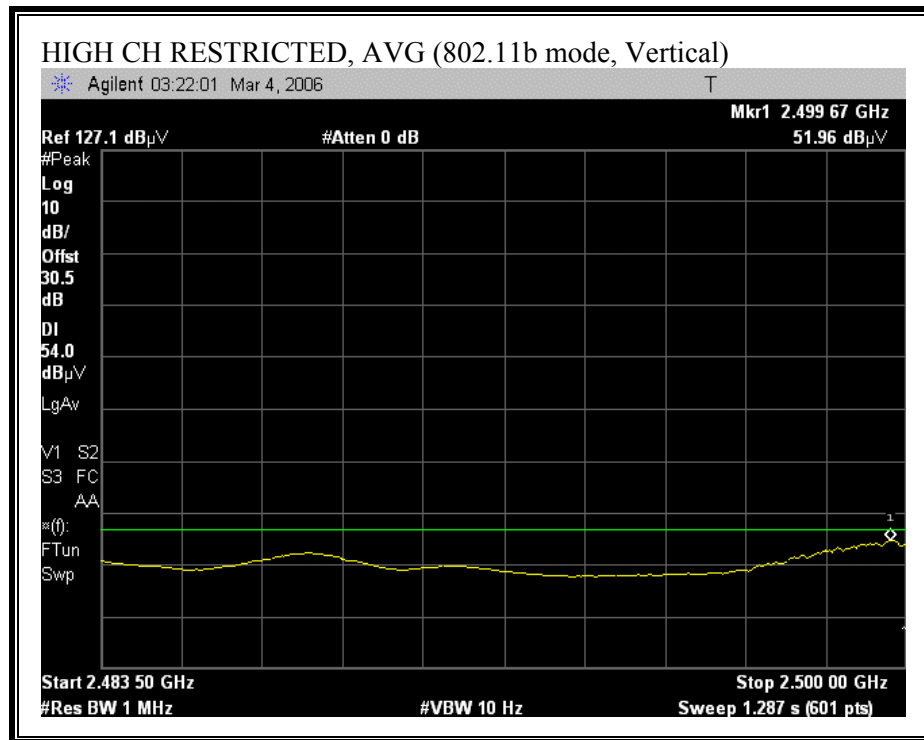
RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)

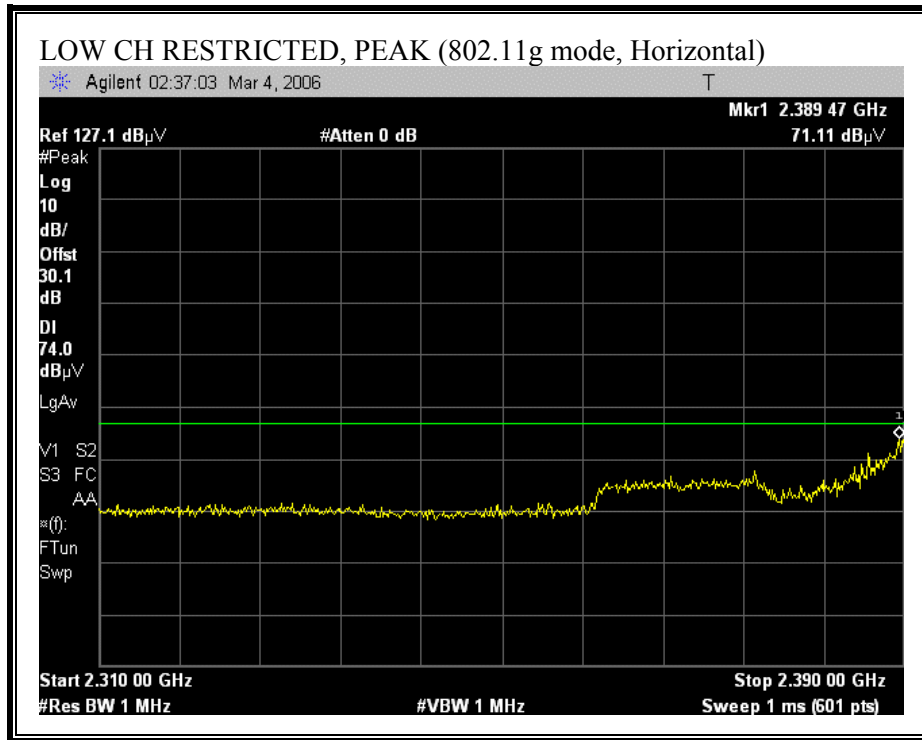


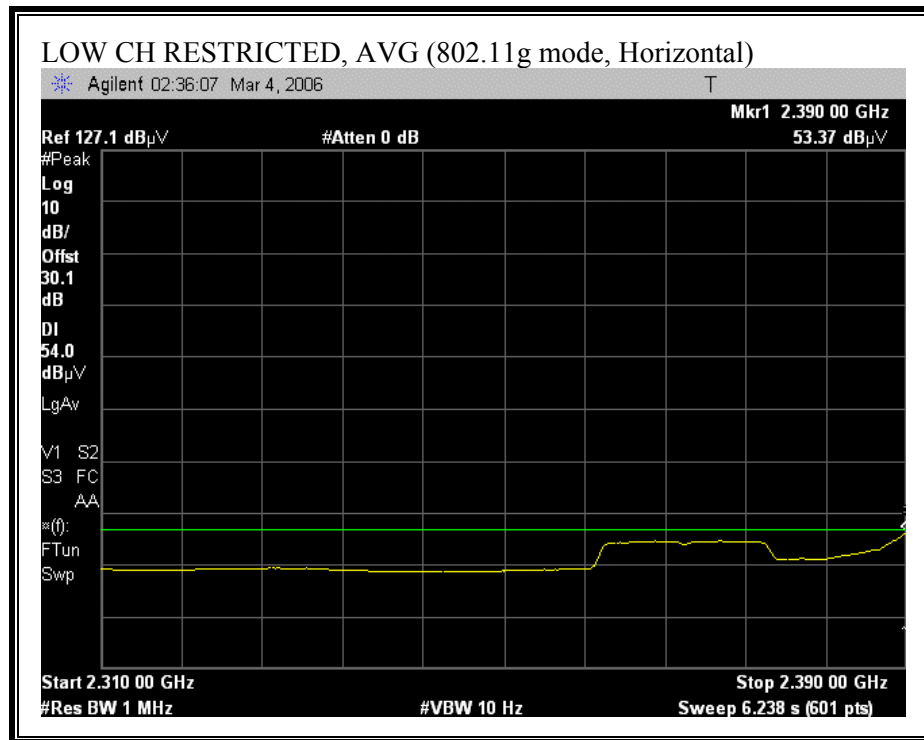


HARMONICS AND SPURIOUS EMISSIONS (b MODE) – WITH FOXCONN ANTENNA

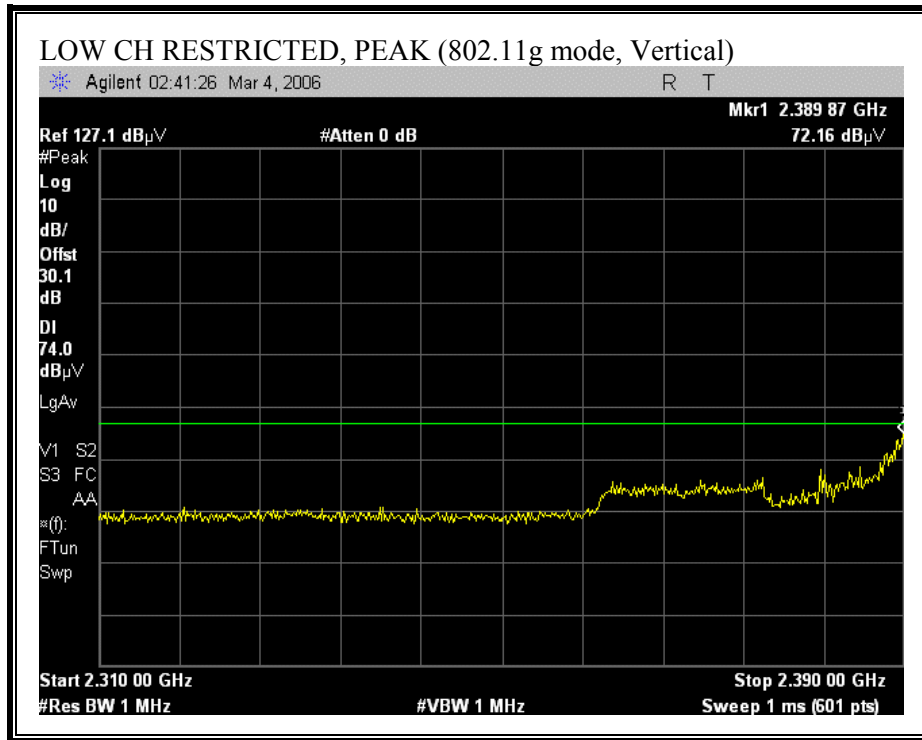
03/06/06 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																			
Test Engineer:		Frank Ibrahim																	
Project #:		06I10115																	
Company:		Samsung Electronics Co. Ltd.																	
EUT Description:		Notebook PC with Foxconn Antenna																	
EUT M/N:		NP-Q1																	
EUT S/N:		549G93AL200019E																	
Test Target:		FCC 15.247																	
Mode Of Operation:		TX ON in 11b mode, 1Mbps																	
Test Equipment:																			
Horn 1-18GHz				Pre-amplifier 1-26GHz				Pre-amplifier 26-40GHz				Horn > 18GHz				Limit			
T73; S/N: 6717 @3m				T87 Miteq 924342								T89; ARA 18-26GHz; S/N:1049				FCC 15.205			
Hi Frequency Cables																			
2 foot cable				3 foot cable				12 foot cable				HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz			
				Frank 177080001				Frank 187209001				HPF_4.0GHz							
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)				
Low Channel (2412 MHz)																			
4.824	3.0	55.6	50.3	33.7	4.0	-45.3	0.0	0.6	48.6	43.3	74	54	-25.4	-10.7	V				
4.824	3.0	53.7	43.4	33.7	4.0	-45.3	0.0	0.6	46.6	36.4	74	54	-27.4	-17.6	H				
Mid Channel (2437 MHz)																			
4.874	3.0	57.9	52.4	33.8	4.0	-45.3	0.0	0.6	51.0	45.5	74	54	-23.0	-8.5	V				
7.311	3.0	57.4	51.5	35.5	4.6	-43.2	0.0	0.6	54.9	49.0	74	54	-19.1	-5.0	V				
4.874	3.0	55.4	48.8	33.8	4.0	-45.3	0.0	0.6	48.4	41.8	74	54	-25.6	-12.2	H				
7.311	3.0	56.4	48.9	35.5	4.6	-43.2	0.0	0.6	53.9	46.4	74	54	-20.1	-7.6	H				
High Channel (2462 MHz)																			
4.924	3.0	56.2	51.7	33.8	4.0	-45.4	0.0	0.6	49.3	44.8	74	54	-24.7	-9.2	V				
7.386	3.0	59.4	54.0	35.6	4.6	-43.1	0.0	0.6	57.1	51.7	74	54	-16.9	-2.3	V				
4.924	3.0	53.3	43.3	33.8	4.0	-45.4	0.0	0.6	46.4	36.4	74	54	-27.6	-17.6	H				
7.386	3.0	57.0	50.1	35.6	4.6	-43.1	0.0	0.6	54.7	47.8	74	54	-19.3	-6.2	H				
EUT was scanned from 1 GHz to 25 GHz, no other signals above noise floor were detected.																			
f	Measurement Frequency		Amp	Preamp Gain		Avg Lim		Average Field Strength Limit											
Dist	Distance to Antenna		D Corr	Distance Correct to 3 meters		Pk Lim		Peak Field Strength Limit											
Read	Analyzer Reading		Avg	Average Field Strength @ 3 m		Avg Mar		Margin vs. Average Limit											
AF	Antenna Factor		Peak	Calculated Peak Field Strength		Pk Mar		Margin vs. Peak Limit											
CL	Cable Loss		HPF	High Pass Filter															

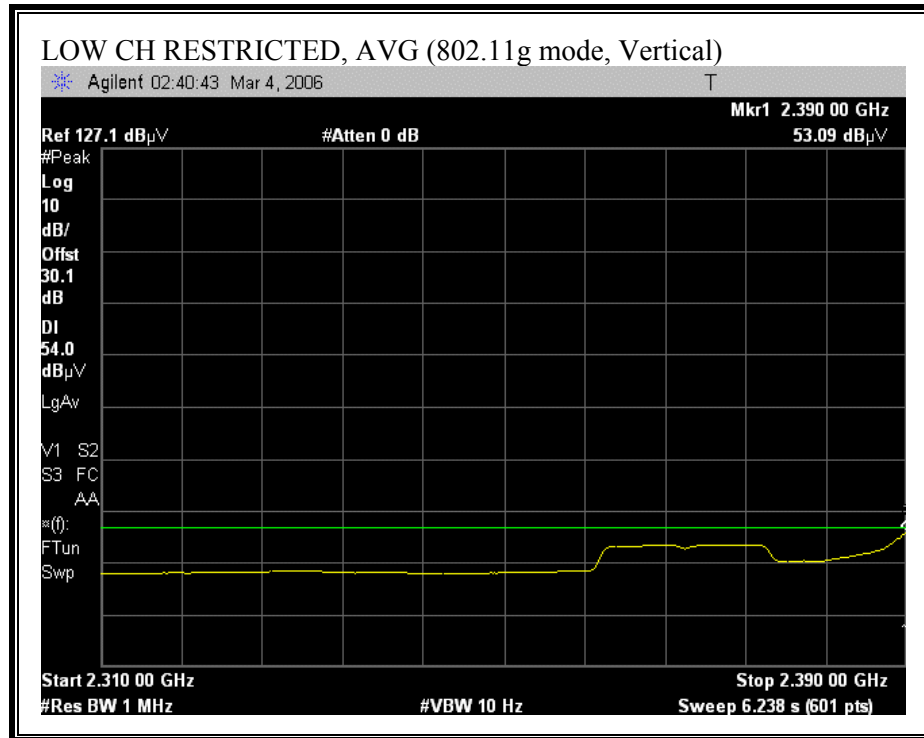
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)



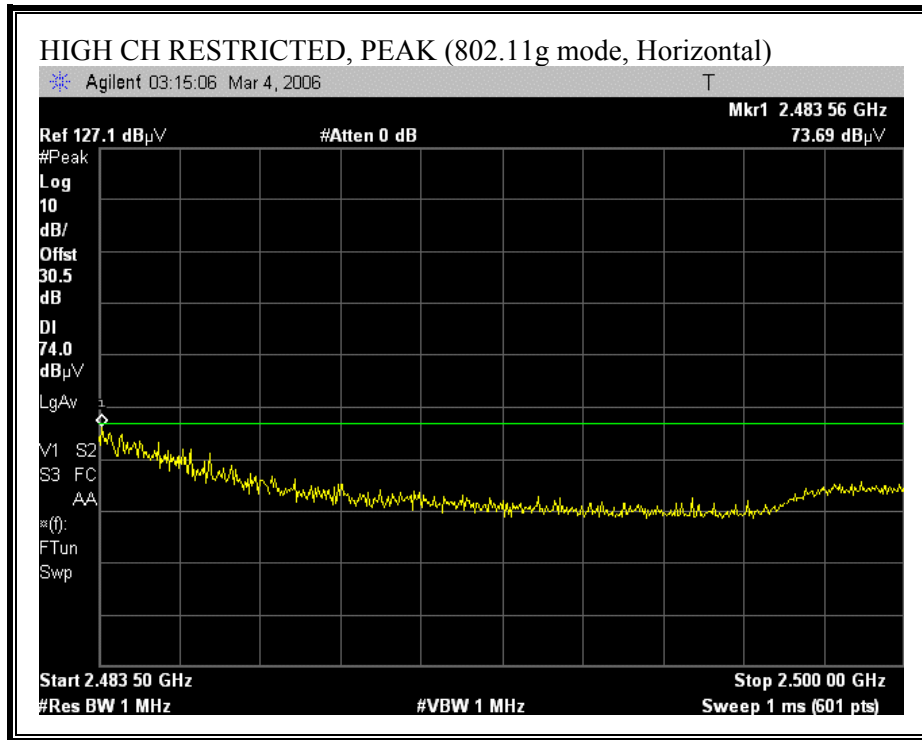


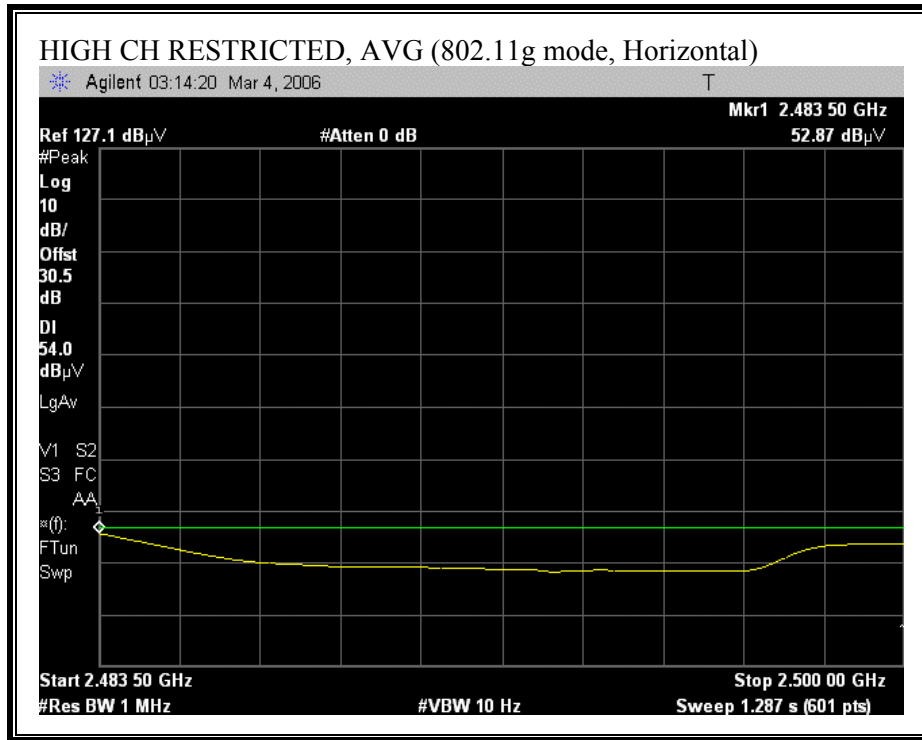
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)



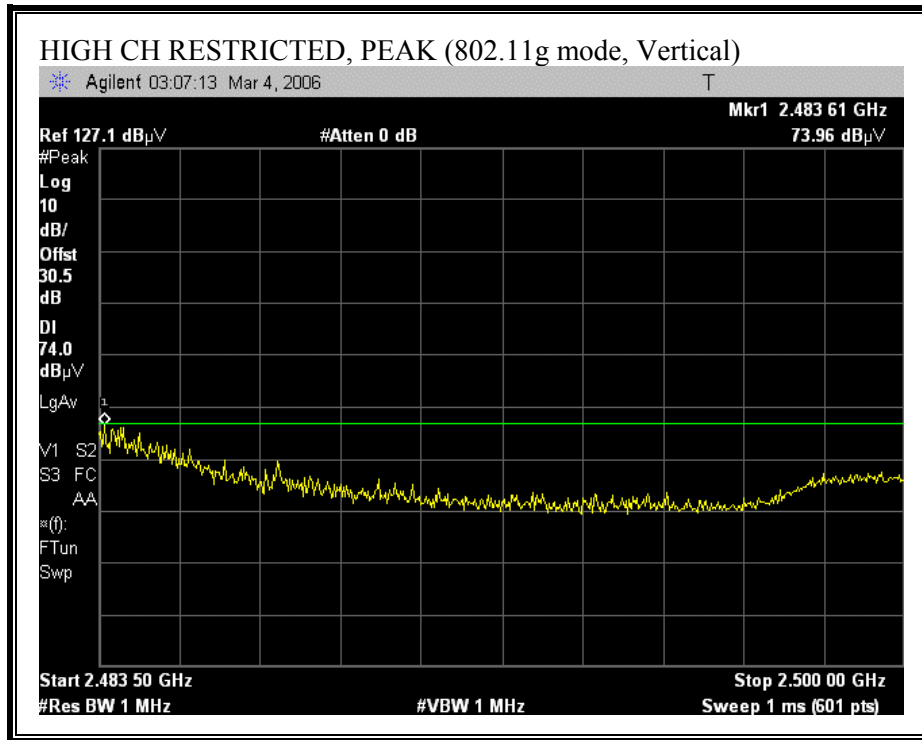


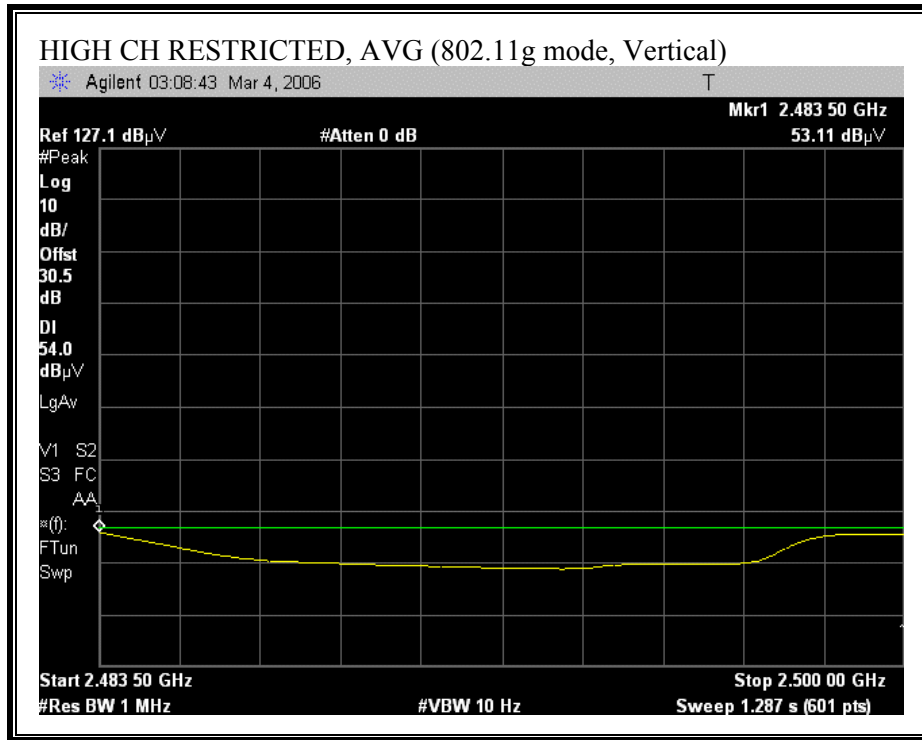
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)



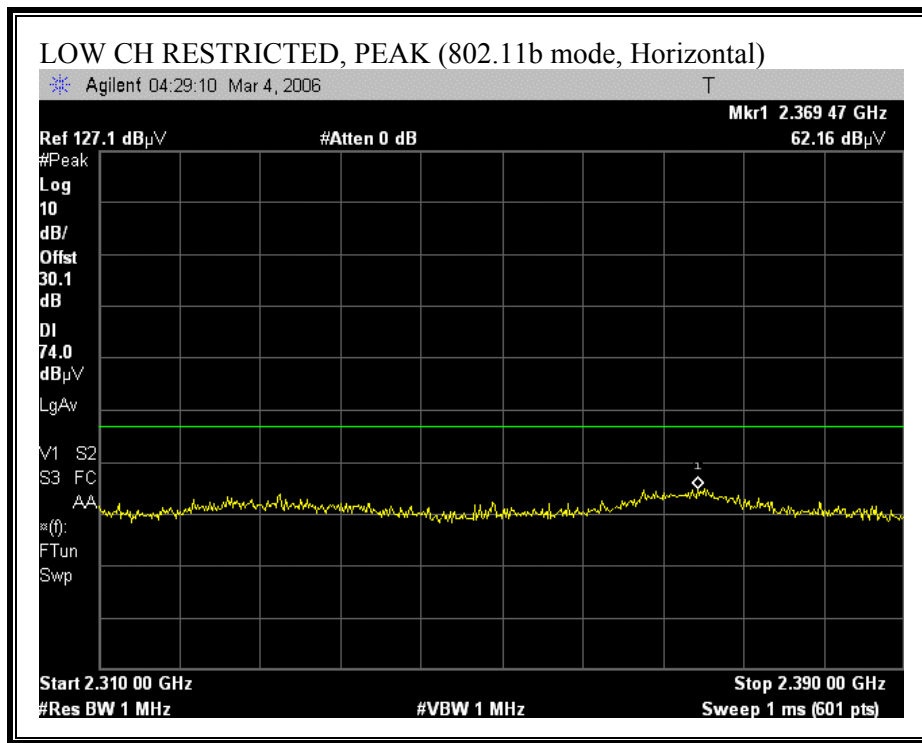


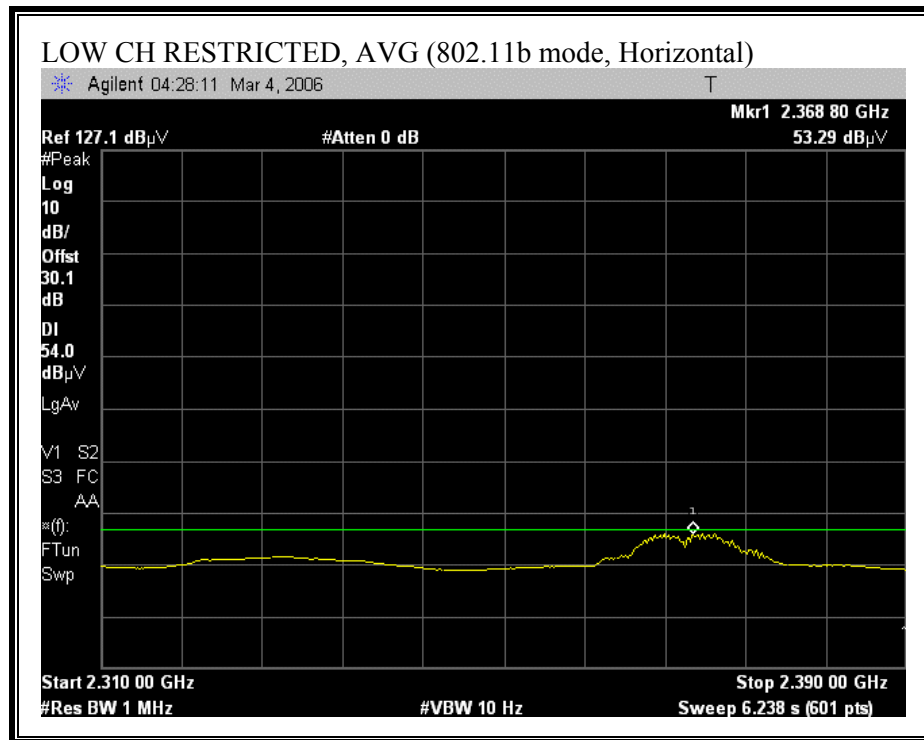
HARMONICS AND SPURIOUS EMISSIONS (g MODE) – WITH FOXCONN ANTENNA

03/07/06 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Test Engineer:		Frank Ibrahim													
Project #:		06I10115													
Company:		Samsung Electronics Co. Ltd.													
EUT Description:		Notebook PC with Foxconn Antenna													
EUT M/N:		NP-Q1													
EUT S/N:		549G93AL200019E													
Test Target:		FCC 15.247													
Mode Of Operation:		TX ON in 11g mode, 6Mbps													
Test Equipment:															
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit							
T73; S/N: 6717 @3m		T87 Miteq 924342				T89; ARA 18-26GHz; S/N:1049		FCC 15.205							
Hi Frequency Cables															
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz					
		Frank 177080001		Frank 187209001		HPF_4.0GHz									
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel (2412 MHz)															
4.824	3.0	52.1	39.4	33.7	4.0	-45.3	0.0	0.6	45.1	32.4	74	54	-28.9	-21.6	V
4.824	3.0	52.2	39.7	33.7	4.0	-45.3	0.0	0.6	45.2	32.7	74	54	-28.8	-21.3	H
Mid Channel (2437 MHz)															
4.874	3.0	55.7	43.3	33.8	4.0	-45.3	0.0	0.6	48.8	36.4	74	54	-25.2	-17.6	V
7.311	3.0	69.1	54.3	35.5	4.6	-43.2	0.0	0.6	66.6	51.9	74	54	-7.4	-2.1	V
4.874	3.0	52.4	39.8	33.8	4.0	-45.3	0.0	0.6	45.5	32.8	74	54	-28.5	-21.2	H
7.311	3.0	64.2	49.8	35.5	4.6	-43.2	0.0	0.6	61.7	47.4	74	54	-12.3	-6.6	H
High Channel (2462 MHz)															
4.924	3.0	52.5	39.4	33.8	4.0	-45.4	0.0	0.6	45.6	32.5	74	54	-28.4	-21.5	V
7.386	3.0	66.0	49.1	35.6	4.6	-43.1	0.0	0.6	63.8	46.9	74	54	-10.2	-7.1	V
4.924	3.0	52.3	39.0	33.8	4.0	-45.4	0.0	0.6	45.4	32.1	74	54	-28.6	-21.9	H
7.386	3.0	62.5	45.0	35.6	4.6	-43.1	0.0	0.6	60.3	42.8	74	54	-13.7	-11.2	H
EUT was scanned from 1 GHz to 25 GHz, no other signals above noise floor were detected.															
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										

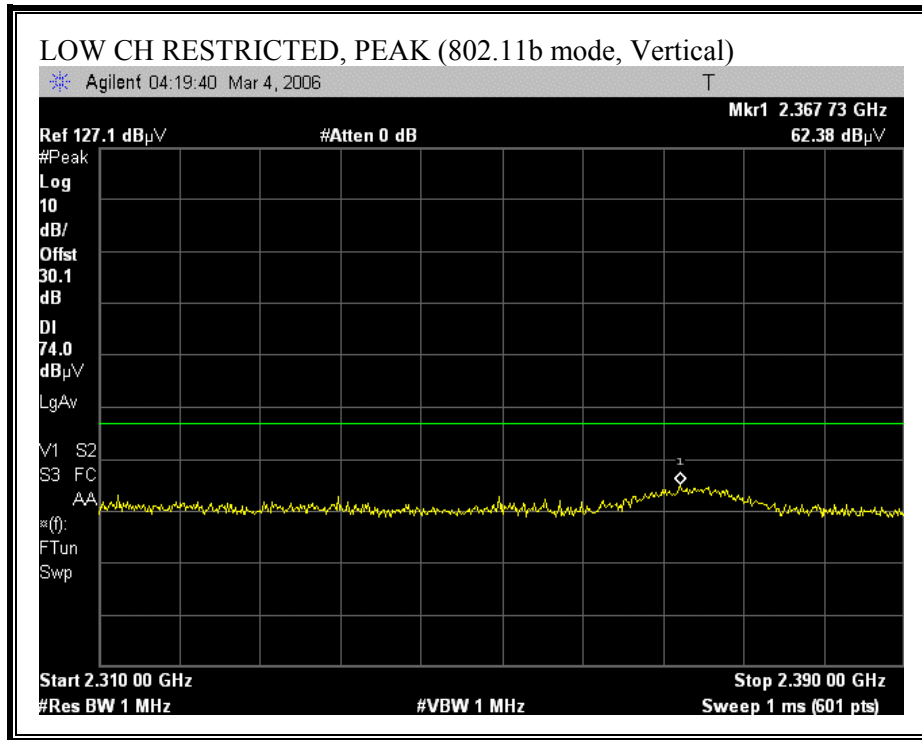
EUT with KAE Antenna

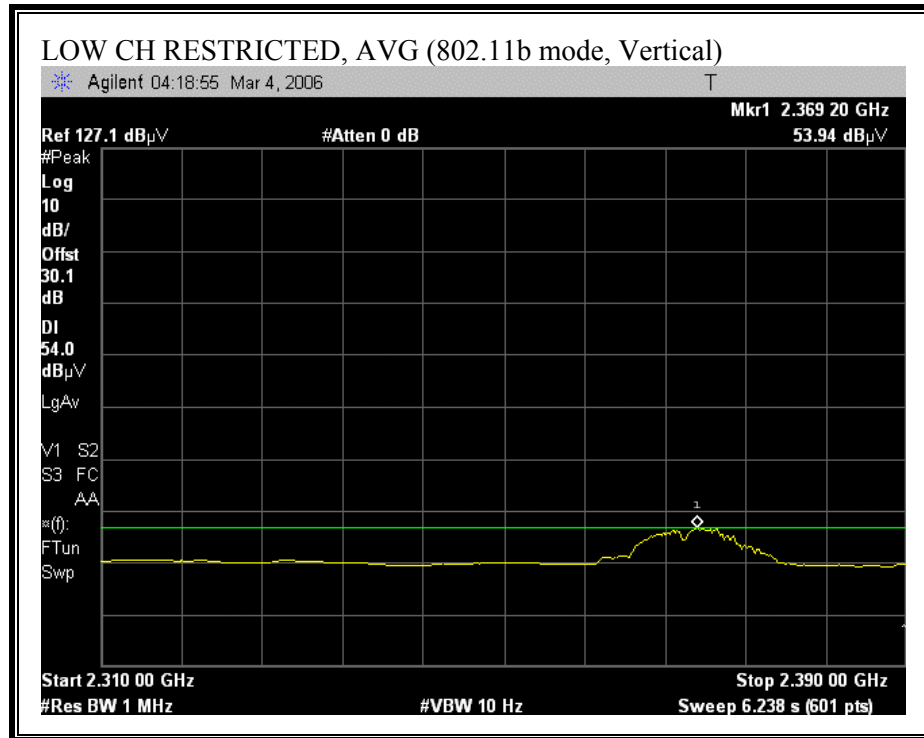
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)



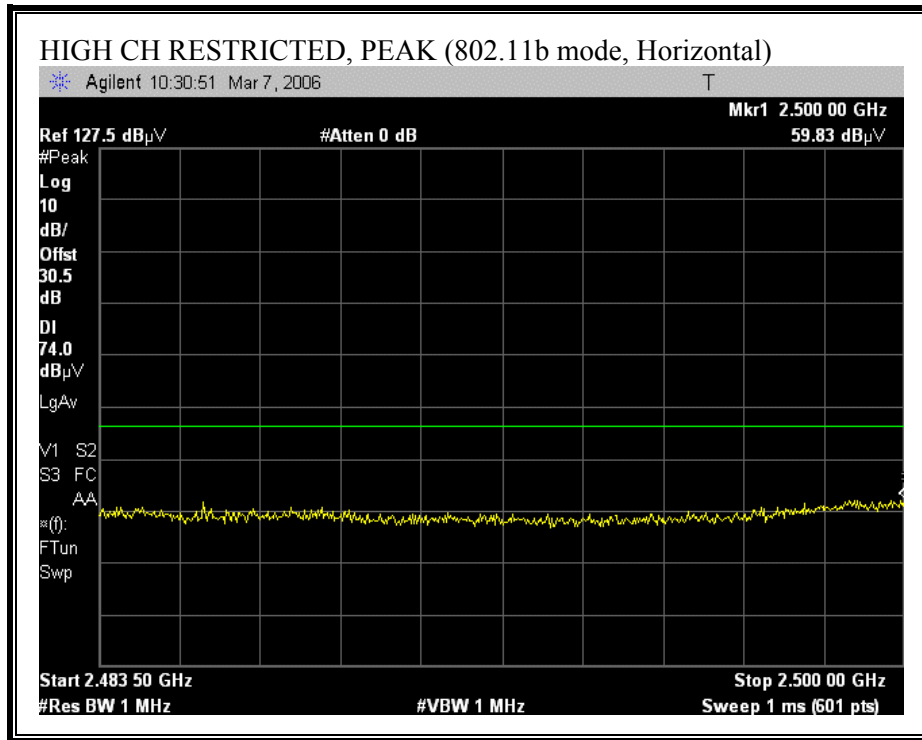


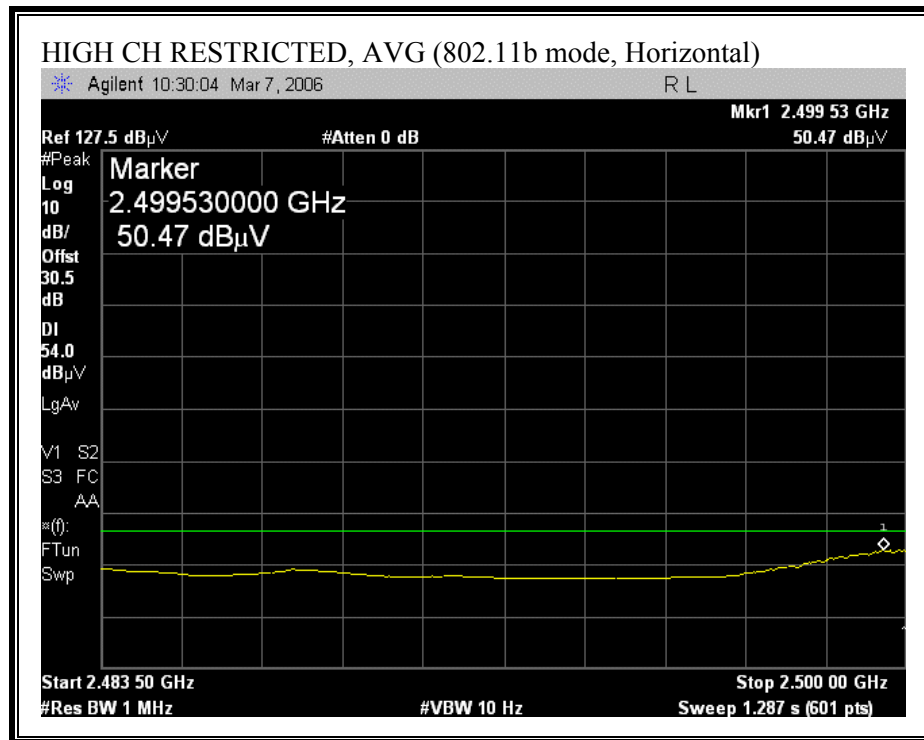
RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)



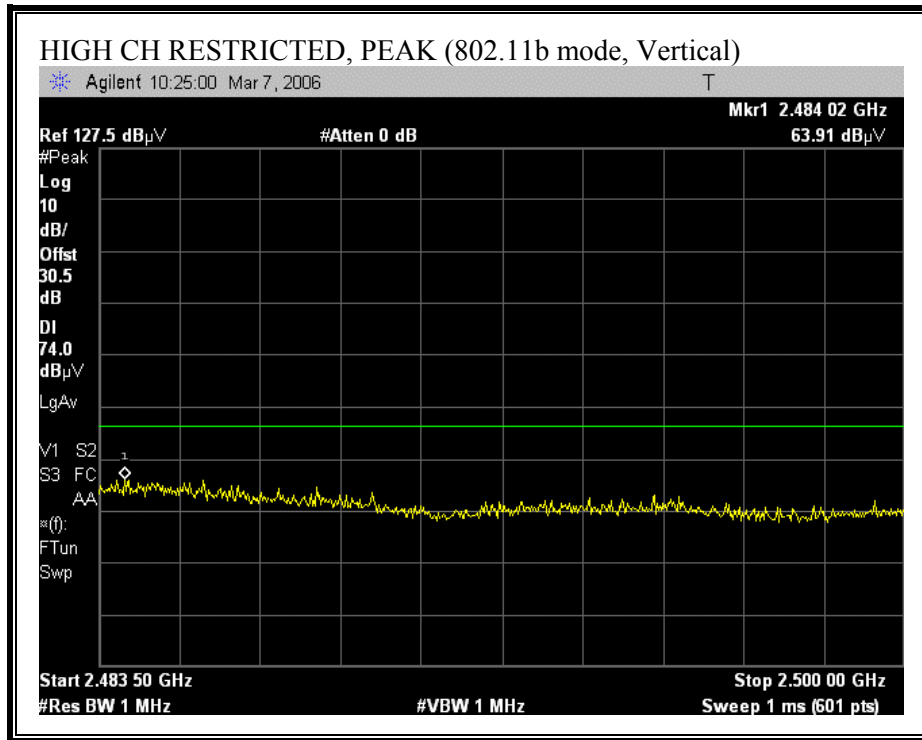


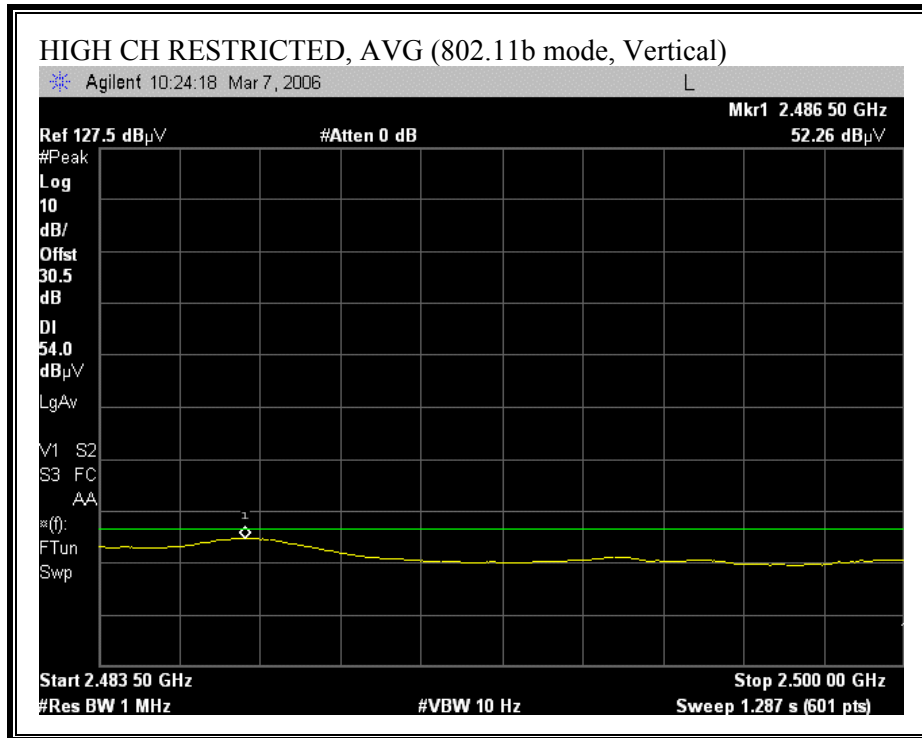
RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)

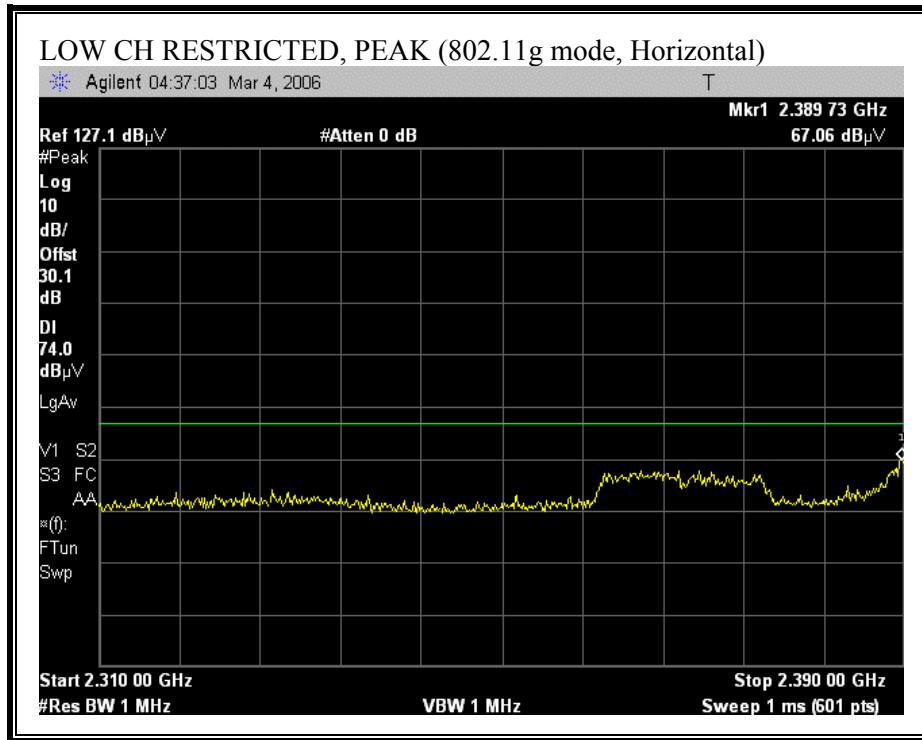


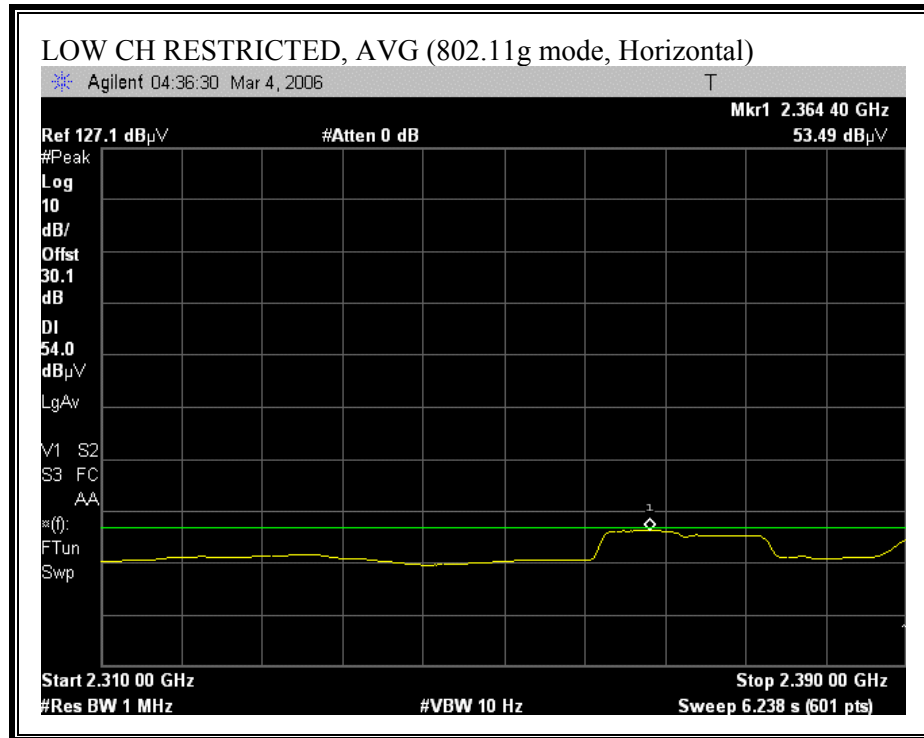


HARMONICS AND SPURIOUS EMISSIONS (b MODE) – WITH KAE ANTENNA

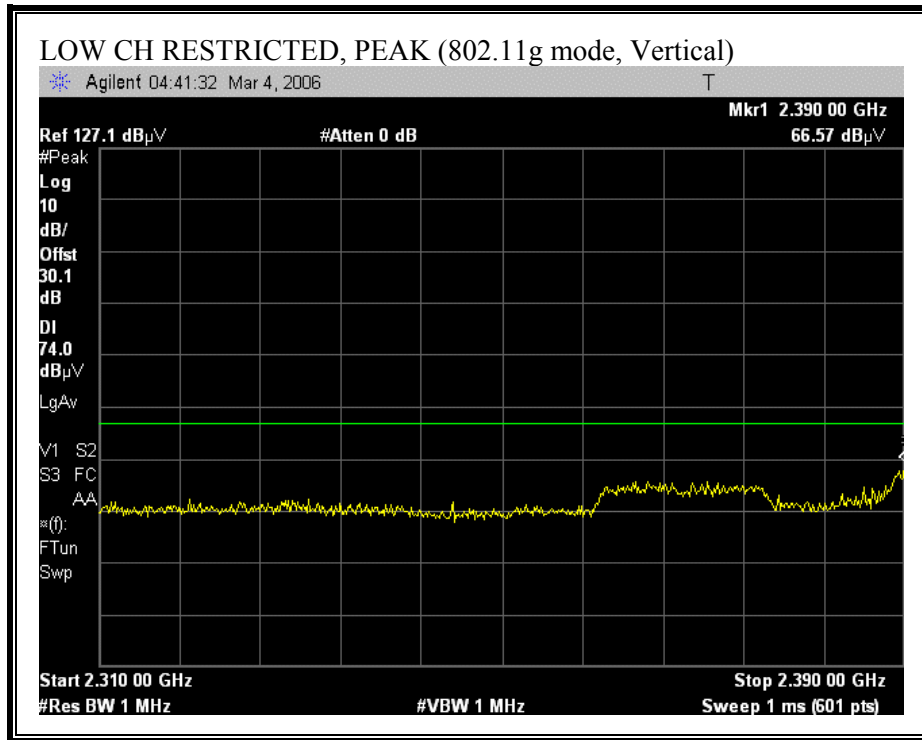
03/06/06 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																																														
Test Engineer:		Frank Ibrahim																																												
Project #:		06I10115																																												
Company:		Samsung Electronics Co. Ltd.																																												
EUT Description:		Notebook PC with KAE Antenna																																												
EUT M/N:		NP-Q1																																												
EUT S/N:		549G93AL200019E																																												
Test Target:		FCC 15.247																																												
Mode Of Operation:		TX ON in 11b mode, 1Mbps																																												
Test Equipment:																																														
Horn 1-18GHz				Pre-amplifier 1-26GHz				Pre-amplifier 26-40GHz				Horn > 18GHz																																		
T73; S/N: 6717 @3m				T87 Miteq 924342																																										
Hi Frequency Cables																																														
2 foot cable				3 foot cable				12 foot cable				HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz																														
				Frank 177080001				Frank 187209001				HPF_4.0GHz				Average Measurements RBW=1MHz ; VBW=10Hz																														
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)																															
Low Channel (2412 MHz)																																														
4.824	3.0	51.6	38.5	33.7	4.0	-45.3	0.0	0.6	44.6	31.5	74	54	-29.4	-22.5	V																															
4.824	3.0	51.7	38.9	33.7	4.0	-45.3	0.0	0.6	44.7	31.9	74	54	-29.3	-22.1	H																															
Mid Channel (2437 MHz)																																														
4.874	3.0	53.3	43.0	33.8	4.0	-45.3	0.0	0.6	46.4	36.1	74	54	-27.6	-17.9	V																															
7.311	3.0	55.0	44.2	35.5	4.6	-43.2	0.0	0.6	52.5	41.7	74	54	-21.5	-12.3	V																															
4.874	3.0	56.8	52.7	33.8	4.0	-45.3	0.0	0.6	49.8	45.7	74	54	-24.2	-8.3	H																															
7.311	3.0	55.2	47.2	35.5	4.6	-43.2	0.0	0.6	52.7	44.7	74	54	-21.3	-9.3	H																															
High Channel (2462 MHz)																																														
4.924	3.0	53.1	43.6	33.8	4.0	-45.4	0.0	0.6	46.2	36.7	74	54	-27.8	-17.3	V																															
7.386	3.0	54.0	43.3	35.6	4.6	-43.1	0.0	0.6	51.8	41.0	74	54	-22.2	-13.0	V																															
4.924	3.0	55.4	49.1	33.8	4.0	-45.4	0.0	0.6	48.6	42.2	74	54	-25.4	-11.8	H																															
7.386	3.0	54.0	43.2	35.6	4.6	-43.1	0.0	0.6	51.8	41.0	74	54	-22.2	-13.0	H																															
<table border="0"><tr><td>f</td><td>Measurement Frequency</td><td>Amp</td><td>Preamp Gain</td><td>Avg Lim</td><td>Average Field Strength Limit</td></tr><tr><td>Dist</td><td>Distance to Antenna</td><td>D Corr</td><td>Distance Correct to 3 meters</td><td>Pk Lim</td><td>Peak Field Strength Limit</td></tr><tr><td>Read</td><td>Analyzer Reading</td><td>Avg</td><td>Average Field Strength @ 3 m</td><td>Avg Mar</td><td>Margin vs. Average Limit</td></tr><tr><td>AF</td><td>Antenna Factor</td><td>Peak</td><td>Calculated Peak Field Strength</td><td>Pk Mar</td><td>Margin vs. Peak Limit</td></tr><tr><td>CL</td><td>Cable Loss</td><td>HPF</td><td>High Pass Filter</td><td></td><td></td></tr></table>																	f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit	Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit	Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit	AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit	CL	Cable Loss	HPF	High Pass Filter		
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit																																									
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit																																									
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CL	Cable Loss	HPF	High Pass Filter																																											
EUT was scanned from 1 GHz to 25 GHz, no other signals above noise floor were detected.																																														

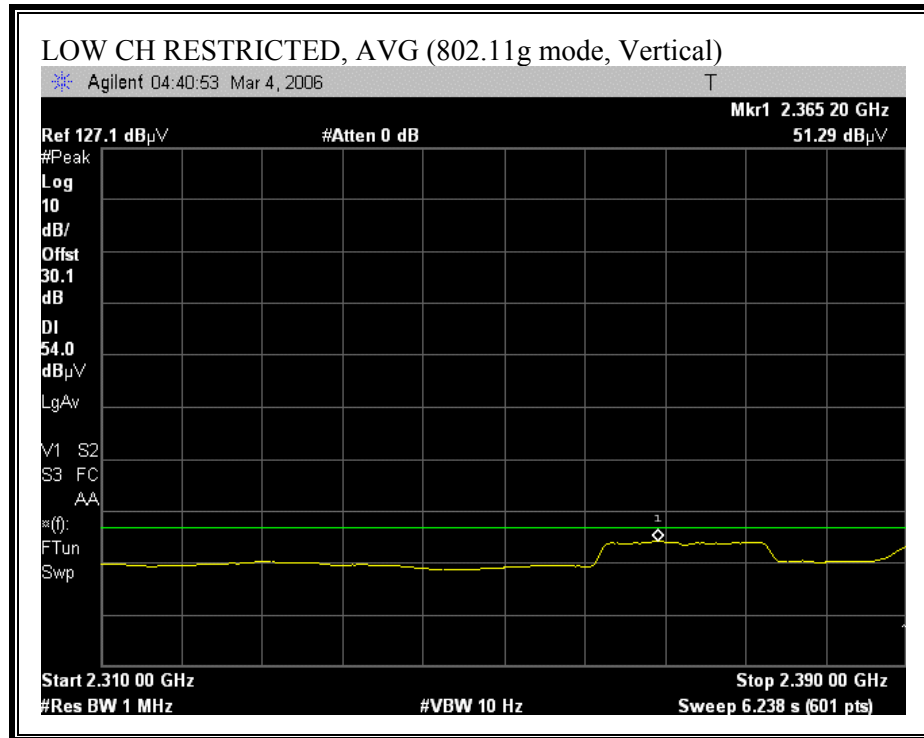
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)



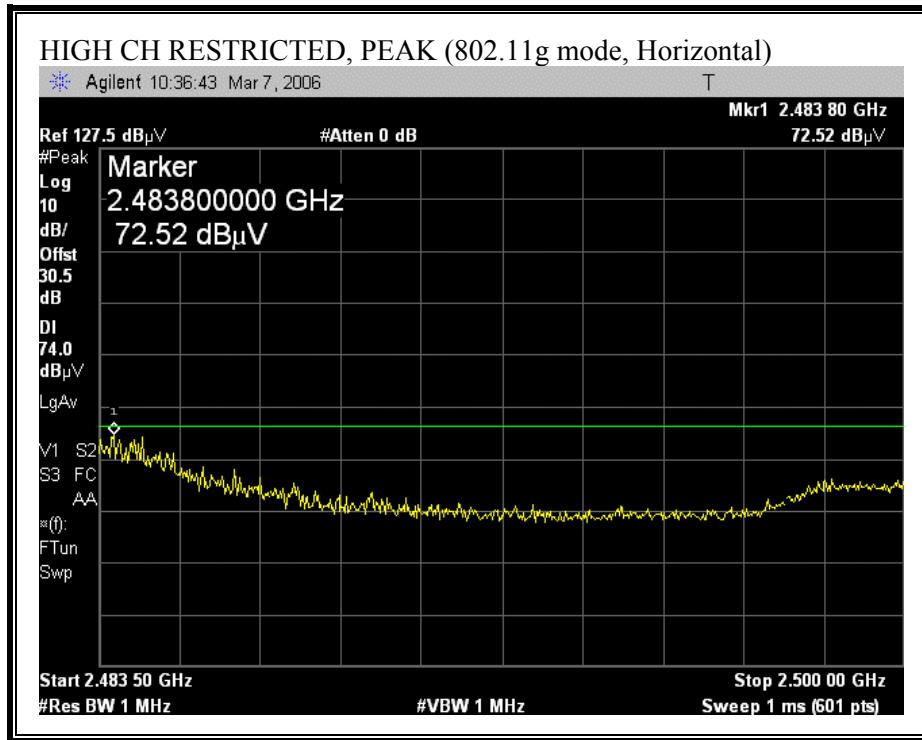


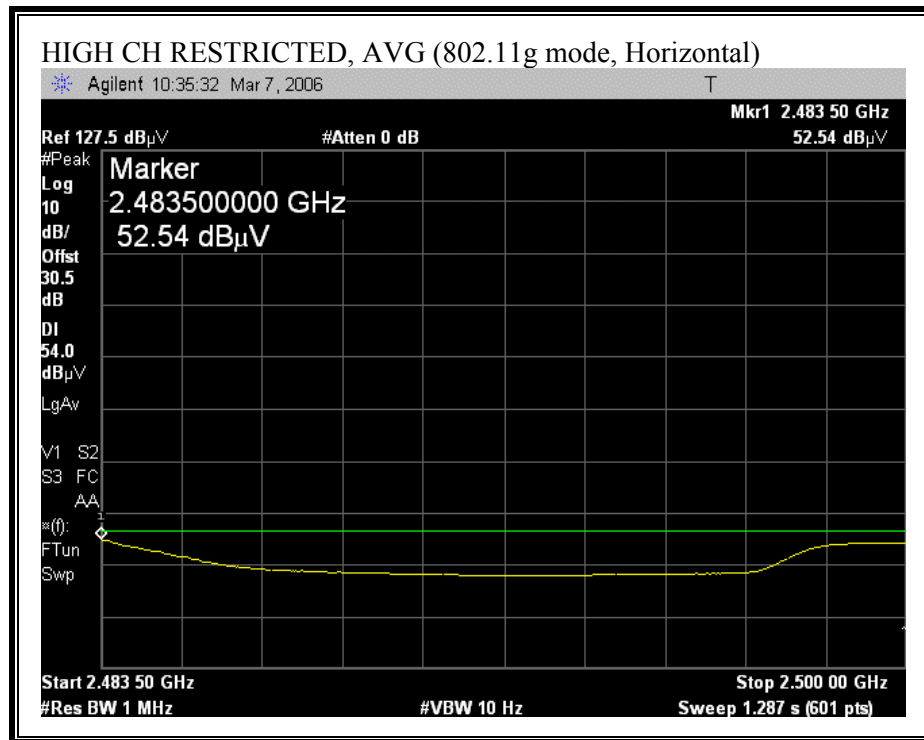
RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)



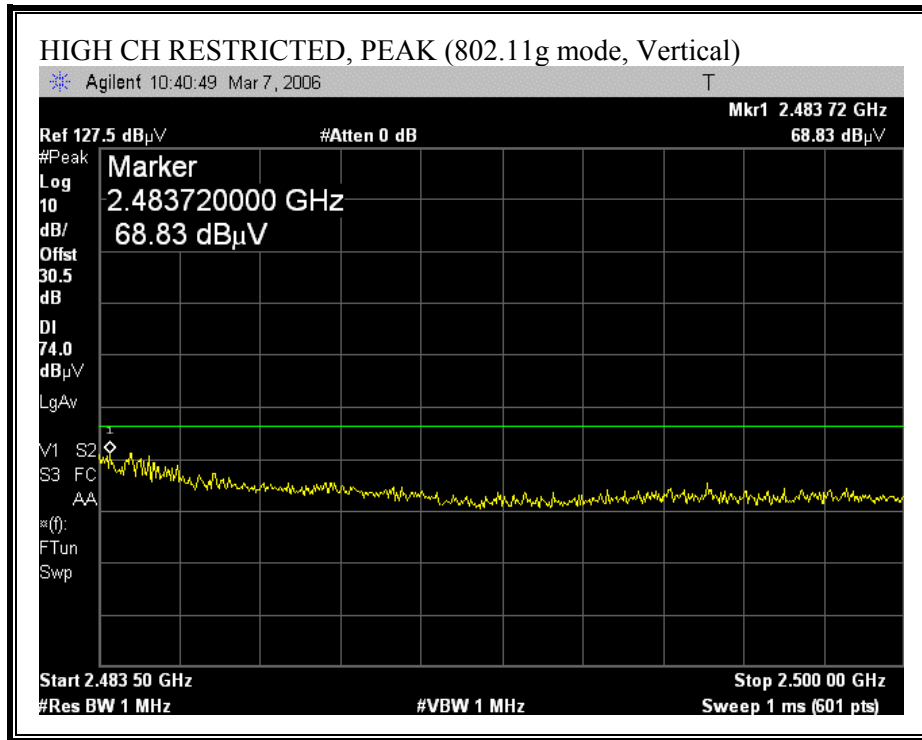


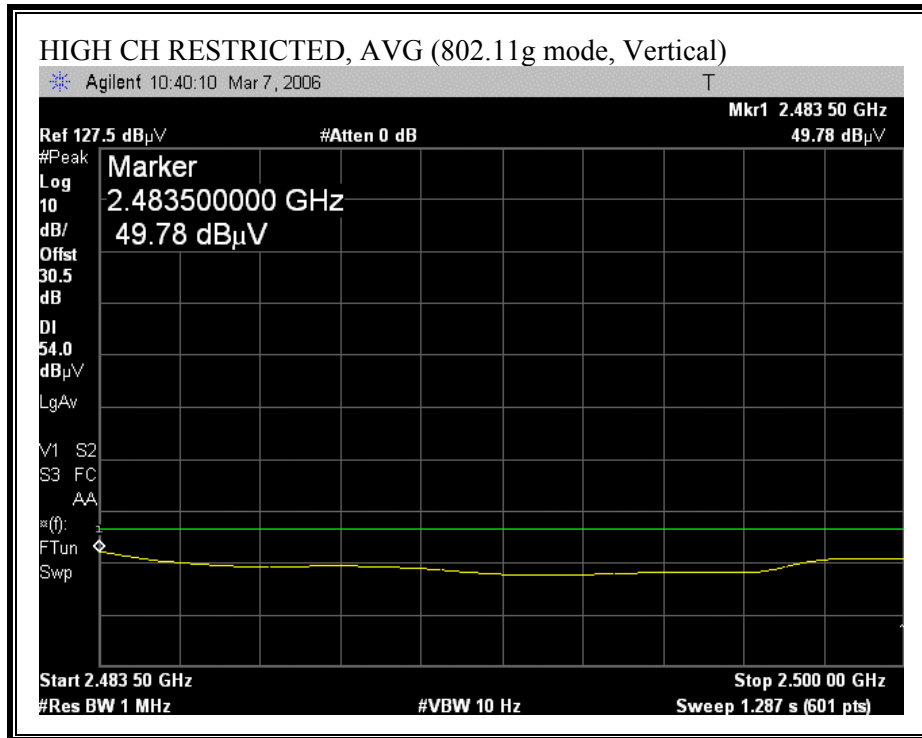
RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS (g MODE) – WITH KAE ANTENNA

03/07/06 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																																														
Test Engineer:		Frank Ibrahim																																												
Project #:		06I10115																																												
Company:		Samsung Electronics Co. Ltd.																																												
EUT Description:		Notebook PC with KAE Antenna																																												
EUT M/N:		NP-Q1																																												
EUT S/N:		549G93AL200019E																																												
Test Target:		FCC 15.247																																												
Mode Of Operation:		TX ON in 11g mode, 6Mbps																																												
Test Equipment:																																														
Horn 1-18GHz T73; S/N: 6717 @3m				Pre-amplifier 1-26GHz T87 Miteq 924342				Pre-amplifier 26-40GHz				Horn > 18GHz																																		
Hi Frequency Cables																																														
2 foot cable				3 foot cable Frank 177080001				12 foot cable Frank 187209001				HPF HPF_4.0GHz		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz																														
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)																															
Low Channel (2412 MHz)																																														
4.824	3.0	52.2	39.4	33.7	4.0	-45.3	0.0	0.6	45.1	32.4	74	54	-28.9	-21.6	V																															
4.824	3.0	51.8	38.9	33.7	4.0	-45.3	0.0	0.6	44.8	31.8	74	54	-29.2	-22.2	H																															
Mid Channel (2437 MHz)																																														
4.280	3.0	59.2	40.9	33.1	3.7	-45.0	0.0	0.5	51.5	33.2	74	54	-22.5	-20.8	V																															
4.874	3.0	54.5	40.3	33.8	4.0	-45.3	0.0	0.6	47.6	33.3	74	54	-26.4	-20.7	V																															
7.311	3.0	57.5	44.7	35.5	4.6	-43.2	0.0	0.6	55.0	42.3	74	54	-19.0	-11.7	V																															
4.280	3.0	59.4	41.6	33.1	3.7	-45.0	0.0	0.5	51.6	33.9	74	54	-22.4	-20.1	H																															
4.874	3.0	54.2	41.8	33.8	4.0	-45.3	0.0	0.6	47.2	34.8	74	54	-26.8	-19.2	H																															
7.311	3.0	60.3	46.1	35.5	4.6	-43.2	0.0	0.6	57.8	43.6	74	54	-16.2	-10.4	H																															
High Channel (2462 MHz)																																														
4.924	3.0	51.6	38.6	33.8	4.0	-45.4	0.0	0.6	44.7	31.7	74	54	-29.3	-22.3	V																															
7.386	3.0	51.4	38.7	35.6	4.6	-43.1	0.0	0.6	49.2	36.5	74	54	-24.8	-17.5	V																															
4.924	3.0	52.0	39.1	33.8	4.0	-45.4	0.0	0.6	45.2	32.2	74	54	-28.8	-21.8	H																															
7.386	3.0	53.1	40.0	35.6	4.6	-43.1	0.0	0.6	50.9	37.8	74	54	-23.1	-16.2	H																															
<table><tr><td>f</td><td>Measurement Frequency</td><td>Amp</td><td>Preamp Gain</td><td>Avg Lim</td><td>Average Field Strength Limit</td></tr><tr><td>Dist</td><td>Distance to Antenna</td><td>D Corr</td><td>Distance Correct to 3 meters</td><td>Pk Lim</td><td>Peak Field Strength Limit</td></tr><tr><td>Read</td><td>Analyzer Reading</td><td>Avg</td><td>Average Field Strength @ 3 m</td><td>Avg Mar</td><td>Margin vs. Average Limit</td></tr><tr><td>AF</td><td>Antenna Factor</td><td>Peak</td><td>Calculated Peak Field Strength</td><td>Pk Mar</td><td>Margin vs. Peak Limit</td></tr><tr><td>CL</td><td>Cable Loss</td><td>HPF</td><td>High Pass Filter</td><td></td><td></td></tr></table>																	f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit	Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit	Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit	AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit	CL	Cable Loss	HPF	High Pass Filter		
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CL	Cable Loss	HPF	High Pass Filter																																											
EUT was scanned from 1 GHz to 25 GHz, no other signals above noise floor were detected.																																														

7.2.2. CO-LOCATED TRANSMITTER RADIATED EMISSIONS

RESULTS

No non-compliance noted:

EUT was activated at mid channel in WLAN 11b mode (2437 MHz), and at mid channel in BT mode (2441 MHz). A pre-scan was performed to investigate whether there is any inter-modulation signal, all the signals that were detected were harmonics of individual transmitters, none of the inter-modulation signals were found in the frequency range of 1 to 25 GHz.

7.2.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

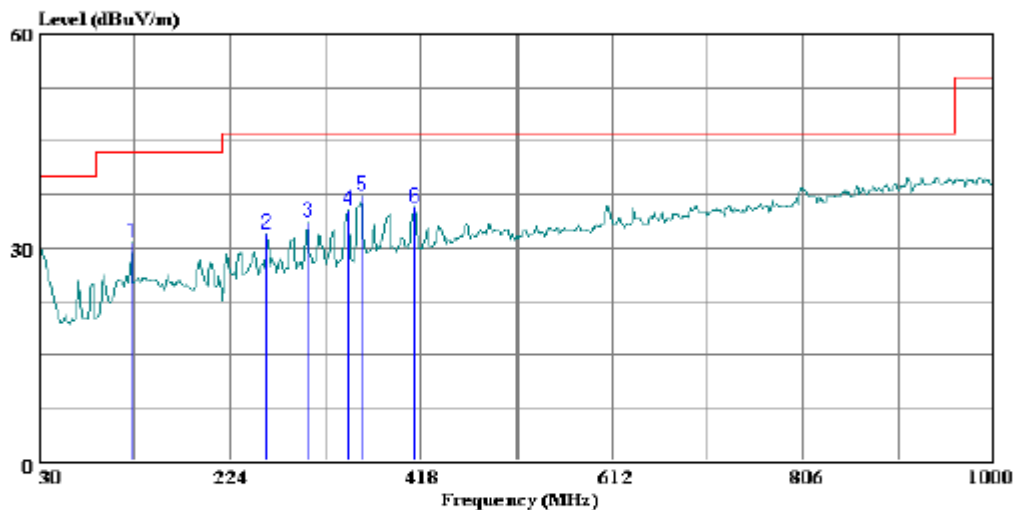
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 2 File#: rad0223.EMI Date: 02-23-2006 Time: 18:53:38



(Auxiliary ATC)

Trace: 1

Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator : Frank Ibrahim
Project # : 06I10115
Company : Samsung Electronics Co. Ltd.
EUT : Notebook PC
Model No : NP-Q1
Configuration : EUT only
Mode of operation: TX ON in 11b mode, Mid Channel, 1Mbps
Target of Test : FCC Class B

HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	124.090	15.48	15.23	30.71	43.50	-12.79	Peak
2	261.830	17.57	14.35	31.92	46.00	-14.09	Peak
3	303.540	17.97	15.75	33.72	46.00	-12.28	Peak
4	344.280	18.46	16.79	35.25	46.00	-10.75	Peak
5	358.830	20.32	17.12	37.44	46.00	-8.56	Peak

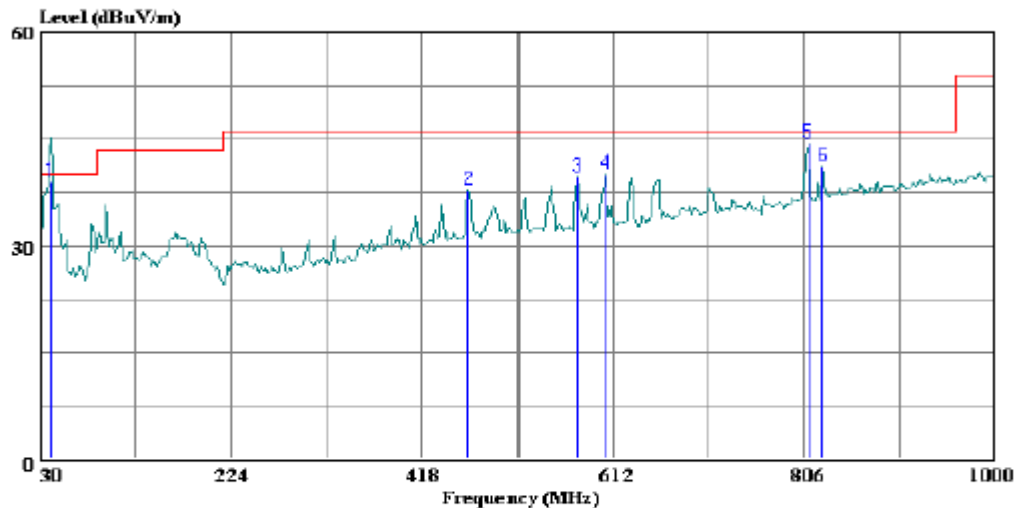
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 10 File#: rad0223.EMI Date: 02-23-2006 Time: 18:09:51



(Auxiliary ATC)

Trace: 5

Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator : Frank Ibrahim
Project # : 06I10115
Company : Samsung Electronics Co., Ltd.
EUT : Notebook PC
Model No : NP-Q1
Configuration : EUT only
Mode of operation: TX ON in 11b mode, Mid Channel, 1Mbps
Target of Test : FCC Class B

VERTICAL DATA

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	41.640	38.94	0.00	38.94	40.00	-1.06	QP
2	465.530	37.80	0.00	37.80	46.00	-8.20	Peak
3	575.140	39.57	0.00	39.57	46.00	-6.43	Peak
4	604.240	40.16	0.00	40.16	46.00	-5.84	Peak
5	809.880	44.36	0.00	44.36	46.00	-1.64	Peak
6	824.430	41.08	0.00	41.08	46.00	-4.92	Peak

7.3. POWERLINE CONDUCTED EMISSIONS

LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

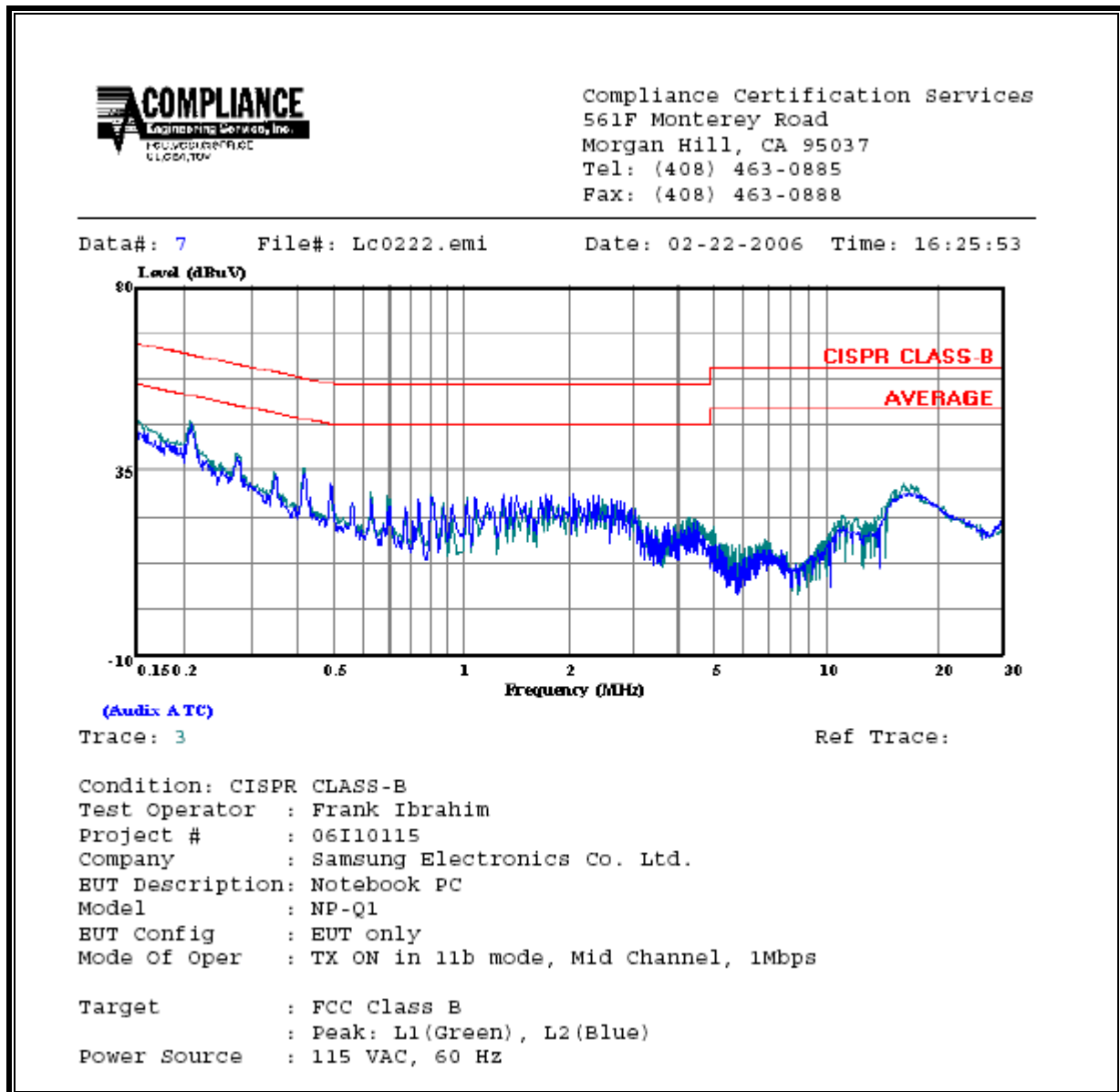
RESULTS

No non-compliance noted:

6 WORST EMISSIONS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.15	47.30	--	--	0.00	66.00	56.00	-18.70	-8.70	L1
0.21	46.78	--	--	0.00	63.32	53.32	-16.54	-6.54	L1
0.28	38.94	--	--	0.00	60.91	50.91	-21.97	-11.97	L1
0.15	44.88	--	--	0.00	65.94	55.94	-21.06	-11.06	L2
0.21	45.96	--	--	0.00	63.28	53.28	-17.32	-7.32	L2
0.28	37.74	--	--	0.00	60.91	50.91	-23.17	-13.17	L2
6 Worst Data									

LINE 1 AND LINE 2 RESULTS



8. SETUP PHOTOS

ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP

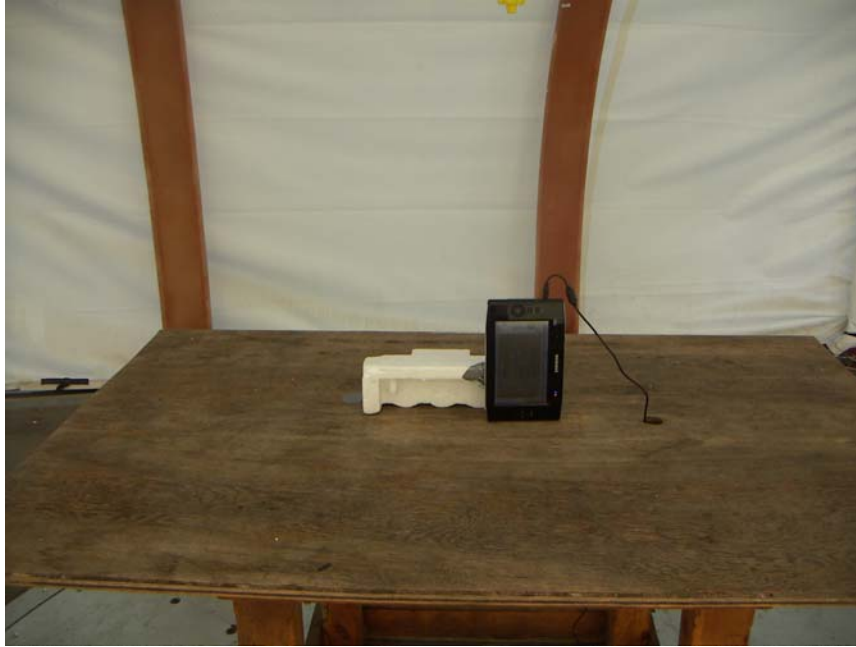


RADIATED RF MEASUREMENT SETUP FOR PORTABLE CONFIGURATION

X-AXIS FRONT PHOTO



Y-AXIS FRONT PHOTO



Z-AXIS FRONT PHOTO



RADIATED EMISSIONS SETUP

FRONT PHOTO



BACK PHOTO



POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP



LINE CONDUCTED BACK PHOTO



END OF REPORT